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Instructor-Facilitated vs. Stand-Alone Tactical Game Training

Scott A. Beal
U.S. Army Research Institute

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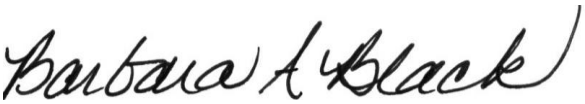

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14. ABSTRACT *(Maximum 200 words)*: Sixty-nine Infantry small unit leaders attending the Basic Non-Commissioned Officer Course (BNCOC) at Fort Benning, Georgia, participated in an experiment that investigated the impact of instructor-facilitated versus stand-alone game training on tactical decision making. Thirty-two leaders were assigned to complete two urban operations-based missions (patrol and defense) using the SimFX game. These leaders worked under the direction of an instructor and interacted with peers. Thirty-seven more leaders completed the two missions, but worked in the absence of an instructor and peer interaction. Pre-exercise measures included military and game experience and tactical situation judgment. A questionnaire administered to leaders following the exercise documented their perceptions of training value, opportunities to implement tactical decisions, and motivation. Leaders in both groups were assessed individually for their ability to recognize and implement sound tactical decisions while serving as leader of a light Infantry squad during patrol and defense missions in a simulated urban environment. Results showed that tactical decision making performance was not impacted by training methods, but that leaders' perceptions of training value and decision making were more favorable when the exercise was facilitated by an instructor and when they interacted with peers. A discussion of the results and their applicability to the Army's trend towards distributed methods of instruction is included.

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INSTRUCTOR-FACILITATED VS STAND-ALONE TACTICAL GAME TRAINING

EXECUTIVE SUMMARY

Research Requirement:

U.S. Army dismounted Infantry small-unit leaders are required to make rapid, adaptive, tactical decisions in response to uncertain and changing battlefield conditions in the current operational environment (COE). In order to respond effectively to these current conditions, Infantry leaders must continue to improve their tactical and cognitive skills in appropriate training contexts. In response, the Department of Defense (DoD) issued directives to develop and implement computer-based simulations and games for sharpening leaders' cognitive skills and supplementing existing training. This report continues a series of research efforts in this area and documents an experimental comparison of instructor-facilitated versus stand-alone methods used to train dismounted Infantry small-unit leaders' tactical decision making.

Procedure:

Sixty-nine Infantry leaders attending the Basic Non-Commissioned Officer Course (BNCOC) at Fort Benning, Georgia, participated in an experiment that investigated the impact of instructor-facilitated versus stand-alone game training on tactical decision making. Thirty-two leaders were assigned to complete two urban operations-based missions (patrol and defense) using the SimFX game. These leaders worked under the direction of an instructor and interacted with peers. Thirty-seven more leaders completed the two missions, but worked in the absence of an instructor and peer interaction.

Pre-exercise measures included military and game experience and tactical situation judgment. A questionnaire administered to leaders following the exercise documented their perceptions of training value, opportunities to implement tactical decisions, and motivation to train. Leaders in both groups were assessed individually for their ability to recognize and implement sound tactical decisions while serving as leader of a light Infantry squad during patrol and defense missions in a simulated urban environment.

Findings:

Results showed that tactical decision making performance was not impacted by training methods. However, leaders' perceptions of decision making opportunities and training value were more favorable when the exercise was facilitated by an instructor and when they interacted with peers. These findings are discussed in the context of research on the pedagogic value of instructor and peer interaction and the Army's trend towards the use of distributed learning techniques

Utilization and Dissemination of Findings:

The results of this research will influence the future use of desk-top simulations and games for training and assessing the cognitive skills of Infantry leaders. Findings will be discussed with key individuals from the Army training community and others involved in military training and simulation development.

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Instructor-Facilitated vs. Stand-Alone Tactical Game Training

Introduction

The Emergence of Computer-Based Games and Simulations for Training Infantry Small Unit Leaders

The perpetuation of computer-based games and simulations for military training has flourished since the Department of Defense (DoD) issued a directive for the development and use of live, virtual, and constructive simulations (DoD, 2004; OUSDPR, 2004). During the two years that followed this directive, developers witnessed the gradual opening of military training institutions as a potential market for efficient, effective games and simulations that could enhance existing training systems or provide Soldiers with new low-cost, realistic, immersive experiences (see Bourge & McGonigle, 2006). Currently, there are no signs that this trend is slowing.

In an effort to meet new training requirements emerging from Operation Iraqi Freedom and Operation Enduring Freedom (OIF/OEF), and to compensate for additional resource constraints, the U.S. Army Infantry School at Fort Benning, Georgia, sought the use of desk-top computer games and simulations for training small unit leaders. While simulations for training military aviators and armored forces had been in use for years, there were few attempts to provide dismounted Infantry small unit leaders with simulated execution experiences beyond some of the simple tasks associated with basic rifle marksmanship (see Pleban, Eakin, Salter & Matthews, 2001). Following the DoD's (2004) directive for an increased use of simulations, the first virtual games and simulations created specifically for training dismounted Infantry Soldiers and leaders began to emerge.

The developers of the first games and simulations for dismounted light Infantry recognized the complexity of simulating the intricate physical details and movements of an individual Soldier. Also difficult to imitate were the wide spectrum of missions and tasks associated with Infantry maneuvers, in addition to the various force structures and the diverse environments in which Soldiers trained. Ignoring these difficulties, some sponsors touted that the benefits of these early games and simulations included the capability to save lives on the battlefield. Others managed their expectations and suggested that games were tools that could enhance existing training, but that they offered mixed experiences within a limited number of tasks. Results from a series of subsequent training effectiveness evaluations seemed to confirm the latter (see Beal & Christ, 2004; 2005).

Using Games and Simulations as Stand-Alone Training Tools

Some promoters of military training games and simulations predicted a near-future where Soldiers could train on their own time, in the absence of qualified instructors and peers. Unencumbered by institutional constraints, individual Soldiers would use simulations to learn according to their immediate levels of knowledge and at their own pace. This so-called "stand-alone" process of simulation training had promise to provide even tactical training without the burden of instructor resources. The games and simulations themselves would collect data, track

progress, and provide meaningful feedback. Based on captured results, Soldiers were expected to appraise their own levels of proficiency and determine if they had met training objectives successfully. Soldiers would provide results to their instructors who would use them to highlight areas of training that needed to be reinforced. Instructors would ensure that the quality of training was maintained even though Soldiers completed much of it on their own time.

The concept of using games and simulations as stand-alone trainers made sense, given the institutional training resource climate. However, there was no empirical support upon which to base decisions and guidelines about using games as stand-alone training tools. In general, Army leaders and trainers responsible for maintaining the quality of institutional training advocated the use of instructor-facilitated methods and peer interaction as much as possible, preferably in groups where the instructor-to-student ratio was relatively low. But findings emerging from investigations of alternative pedagogical approaches suggested that less resource-intensive modes of instruction could produce similar performance outcomes.

Interaction and Equivalence Theory

Researchers have debated for several decades the strategies for optimizing learning through student-teacher interaction in the classroom (see Daniel & Marquis, 1979). Army leaders and trainers have confronted similar issues related to maintaining the quality of institutional training for Soldiers. Both educators and Army trainers have made difficult decisions about selecting teaching and training methods under conditions of constrained resources and in response to other consequential variables.

Anderson (2003) stated that the challenge still exists to find the right mixture of interaction that results in the greatest pedagogical value, although several sound theories have emerged from research in this area. After reviewing the literature, Anderson suggested that there was no single method for presenting information that was clearly better than any other. Instead, he proposed a theory of "Equivalency of Interaction" that presented three types of interaction that are particularly relevant to the use of games as stand-alone trainers and generally relevant to the Army's trend toward distance learning. These types of interaction are: (a) peer-trainer, (b) peer-peer, and (c) peer-content. Anderson described the essence of his theory by stating,

> "Deep and meaningful formal learning is supported as long as one of the three forms of interaction…is at a high level. The other two may be offered at minimal levels, or even eliminated, without degrading the educational experience. High levels of more than one of these three modes will likely provide a more satisfying educational experience, though these experiences may not be as cost or time effective as less interactive learning sequences. This theorem implies that an instructional designer can substitute one type of interaction for one of the others (at the same level) with little loss in educational effectiveness…" (p. 4)

Applying Interaction and Equivalence Theory to the Use of Training Games.

Recent research on using desk-top computer games and simulations for training Infantry leaders suggested that under controlled conditions, instructor-facilitated training combined with

peer interaction resulted in better tactical performance when Soldiers used a virtual simulation with real time communication, and when they executed simulated missions with which they were familiar (Beal, 2007). Under these conditions Soldiers' tactical decision making was more effective and their perceptions of overall training value were more positive than Soldiers who trained with a constructive, stand-alone simulation. However, when Soldiers executed a mission with which they were unfamiliar, there were no meaningful differences in tactical decision performance.

The primary focus of this recent research (Beal, 2007) was to investigate the outcomes of using two very different simulation systems (i.e., virtual versus two-dimensional), each associated with different experimental methods (i.e., instructor-facilitated versus stand-alone). As such, the results were confounded with the administration of the simulations and the methods linked to them. One portion of the results seemed promising because they confirmed earlier findings presented in a comprehensive review of the use and effectiveness of instructional games in multiple settings (Hays, 2005). They also corroborated findings from earlier research by Pleban, Eakin, Salter, and Matthews (2001) that investigated the extent to which a "fully immersive" simulation could be an effective means for training small unit, dismounted Infantry leader cognitive tasks and skills. All three sources of research offered evidence suggesting that games and simulations had the potential to provide Infantry small unit leaders with opportunities to train cognitive and tactical skills, so long as qualified instructors facilitated the training.

The progress towards the use of stand-alone games and simulations continues, while Army institutional training resources constrict and prevailing attitudes about maintaining the quality of training evolve. Questions remain about the extent to which games and simulations can be used in the absence of instructors and peer interactions, and without expending the resources associated with their involvement. There is a need to continue exploring instructor-facilitated versus stand-alone game and simulation training, provide empirically-based results, and form a sound foundation upon which Army leaders and trainers can base decisions about training methods. The purpose of this report is to document results from an experimental comparison of instructor-facilitated versus stand-alone methods of game training for small unit Infantry leaders. The report concludes with an explanation of the findings in reference to Anderson's (2003) Equivalency of Interaction theory and a discussion of how research in this area can help guide the Army's trend towards the use of distributed learning.

SimFX[1]

The leaders who participated in this effort executed missions using a single-player, desk-top computer simulation called Simulated Field Exercise or "SimFX" (see Archer, Brockett, McDermott, & Warwick, 2006; Christ, 2006). It was described by the authors in their user guide as follows:

[1]There is no definitive consensus on a definition of military training games that clearly separates them from simulations. Hays (2005) stated, "In the literature on instructional games, we often find the terms simulations, games, simulation-games, and computer games used interchangeably (p. 9)." Therefore, the terms game and simulation are used interchangeably throughout the remainder of this report.

> "SimFX is a simulation-based training application designed to teach information…and decision making skills to small unit leaders as the Army transitions to the…digital battlefield of the future. [Similar] to immersive virtual reality or game-based training systems, SimFX cognitively engages the [leader] in a branching story where he must make a series of decisions that…affect how the story plays out. Trading the continuous environment of virtual reality for a series of discrete [decision] points ensures that the [leader] will encounter specific decisions at specific points in the scenario, while still engaging the [leader] in the information…and decision making tasks that constitute training.
>
> The unfolding events in the scenario depend not just on the [decisions] made by the [leader], but also on the information accessed to make those decisions. Thus, the [leader] can be rewarded with a successful outcome when he fuses the correct pieces of information, and is less likely to get lucky by randomly choosing the correct response without considering the information sources that are available and forming an understanding of the situation.
>
> While SimFX has been designed to support information fusion training for Infantry small unit leaders in the Army's future force, its underlying approach is general and flexible…SimFX is driven by training objectives, rather than by the tool itself. [SimFX] could be used to develop training for small unit leaders in conventional…forces, or for decision makers at other levels in the command hierarchy (Archer et al., 2006, p.1-2)."

Method

Participants

Sixty-nine Infantry small unit leaders attending the Basic Non-Commissioned Officer Course (BNCOC) at Fort Benning, Georgia, served as participants in this experiment. All leaders had 11B as their military occupational specialty (MOS). Thirty-two leaders were assigned to complete two urban operations-based missions (patrol and defense) using SimFX. These leaders worked under the direction of an instructor during the entire exercise (i.e., Instructor-Facilitated group) and were allowed to interact with peers during mission execution and during an after-action review. Thirty-seven more leaders completed the two missions, but worked in the absence of an instructor and peers (i.e., Stand-Alone group).

Measurement Instruments

Biographical Information Questionnaire. This questionnaire was developed to permit each leader to describe experiences that might impact his tactical decision making performance and other measures and outcomes during the experiment (see Appendix A). In addition to obtaining information such as name, age, rank, and time in service, the questionnaire provided the following:

- Whether leaders had combat experience
- Number of urban operations they completed as a squad leader in combat
- Perceived level of computer proficiency and hours per week of computer use
- Frequency of using Army simulations in the past year
- Number of training events completed at the McKenna MOUT site since basic training
- Number of hours per week playing video games and perceived level of video game proficiency

Squad Leader Situation Judgment Test. This situation judgment test was developed to assess squad leaders' knowledge and ability to make doctrinally and tactically sound decisions under conditions of uncertainty and time constraints (see Appendix B). The test consisted of 20 tactical situations typical to urban operations completed during OIF/OEF. Following each tactical situation was a list of four or five decisions from which the leader was required to choose the most effective.

A group of six military subject matter experts assessed the extent to which the situation judgment test presented content valid, contextually relevant information. In addition, they ensured that the situations were written at an appropriate level of difficulty, and that leaders were provided with doctrinally and tactically sound responses from which they could choose. The situation judgment test was then pilot tested, evaluated, and further refined, resulting in a final version that represented agreement among all the military subject matter experts involved in the development process. Feedback from leaders who completed the situation judgment test in previous research (i.e., Beal, 2007) confirmed that the questions and responses were tactically and contextually sound.

Tactical Decision Making Rating Scales. Two missions were developed in SimFX to facilitate an assessment of each leader's ability to make appropriate, timely, and effective tactical decisions and to direct patrol and defensive operations successfully (see Appendix C). The missions were executed within a simulated tactical environment, patterned after the McKenna MOUT site at Fort Benning, in which uncertain conditions emerged during mission execution**.** Each leader was required to initiate tactical decisions at specific points that were presented as critical events during the missions.

The Tactical Decision Making Rating Scales were developed by a group of military subject-matter experts to assess each leader's ability to make effective tactical decisions as uncertain battlefield conditions emerged during the simulated missions (see Appendices D and E). The rating scales permitted evaluation of each leader's ability to respond to and make tactical decisions for as many as 33 and 40 mission critical events for the patrol and defense missions, respectively. The rating scales were used to indicate (a) whether the leader recognized the need to initiate a tactical decision in response to an emergent critical event, (b) whether he initiated a tactical decision, (c) if a tactical decision was initiated, whether the consequence was positive or negative, and (d) whether the mission was terminated before the event could be presented.

A group of six military subject-matter experts at the Combined Arms and Tactics Directorate (CATD) at Fort Benning, Georgia, developed the ranking hierarchy of tactical

responses shown in Table 1. One member of this group served as CATD's Tactics Chief, another served as Deputy Tactics Chief, and four more served as small group instructors in the Infantry Captains Career Course. Three small group leaders from the Advanced Non-Commissioned Officer Course (ANCOC) corroborated the ranking hierarchy. All military experts involved in developing and corroborating the ranking hierarchy were combat experienced in patrol and defense urban operations.

Table 1
Ranking Hierarchy for Tactical Decision Making During Scenario Execution (1 = Best, 6 = Worst)

Ranking	Tactical Responses
1	Recognized need to respond, implemented appropriate decision, positive consequence.
2	Recognized need to respond, implemented appropriate decision, negative consequence.
3	Recognized need to respond, implemented poor decision, positive consequence.
4	Recognized need to respond, implemented poor decision, negative consequence.
5	Failed to recognize need to respond, did nothing.
6	Recognized need to respond, did nothing.

SimFX Leader Perception Questionnaire. A questionnaire was developed to document the reactions of leaders to their experiences with SimFX (see Appendix F). Each leader was asked to indicate his perceptions about SimFX for the following topics:

- Overall training value
- Tactical training value
- Adaptability and decision making opportunities
- Realism and tactical accuracy
- Motivation for training with simulations
- Fidelity and functional accuracy
- Overall opinion of the training experience

Most of the items on the questionnaire were selected and modified from those used in previous military training games evaluations (Beal, 2007; Beal & Christ, 2004; 2005) and from methods generated for use in large-scale, immersive virtual environments (Singer & Witmer, 1996; Witmer & Singer, 1994; 1998).

Procedures

Instructor-Facilitated Group: Procedures for Executing the Patrol Mission. Leaders in the Instructor-Facilitated group completed a four-hour training session under the direction of a qualified military instructor. Upon arrival at the ARI Warfighter Experimentation Laboratory, each leader completed the Biographical Information Questionnaire and the Squad Leader Situation Judgment Test. Upon completion, the instructor used a slide presentation of SimFX to present the following to the leaders (see Appendix J):

- Purpose of the experiment
- Log-in and mission selection
- Description of SimFX screen options, text boxes, etc.
- Instructions on how to obtain information about the mission during execution
- Instructions on how to communicate with superiors and subordinates
- Description of screen icons and their uses
- Instructions and sequence for completing a mission

Following the slide presentation, the instructor answered any questions asked by leaders about the training exercise. He then instructed them to begin executing the patrol mission.

Once mission execution began, each leader was faced with multiple opportunities to make decisions and implement actions based on information in the operations order and in response to critical events and emerging simulated battlefield conditions. The instructor circulated around the room, observed leaders as they executed the patrol mission, offered solicited and unsolicited tactical guidance, and asked questions and made statements to prompt leaders to implement appropriate tactical decisions. When the leaders asked questions about any aspect of the training exercise, the instructor repeated the questions so that all the leaders could hear, and then answered the questions for the entire group. The instructor announced that leaders were to remain seated upon completion of the patrol mission until all other leaders had completed the mission.

Following execution of the patrol mission, the instructor conducted an after-action review with the group of leaders. The after-action review began with questions posed to the leaders about the operations order and the decisions upon which the leaders' plans were based. A few leaders were given the opportunity to review the tactical components of their plans, discuss the rationale behind the decisions they made during the construction of their plans, and discuss the reasons why their plans were successful or unsuccessful based on their tactical decisions during mission execution. A dialogue between the leaders and the instructor continued until most or all of the critical events and decision points were discussed. The instructor asked probing questions to solicit critical thinking, such as "Under what conditions would you make different decisions?" or "What decisions could you have made that would have led to a more positive outcome?" To conclude the after-action review the instructor offered suggestions and additional guidance for success with patrol missions in general, and then instructed the leaders to execute the defense mission.

Procedures for Executing the Defense Mission. The procedures prior to execution of the defense mission were identical to the ones used prior to the patrol mission. The instructor explained some of the key tactical differences between the two missions, as described in the operations orders.

The instructor provided feedback and guidance during the defense mission for all leaders, followed by an after action review similar to the one described previously for the patrol mission. Following the after-action review, leaders completed the SimFX Leader Perception Questionnaire, and then were invited to ask any questions about the training experience and the

simulation. A researcher asked questions about the leader's overall impressions of the training experience. Upon completion of these questions, the leaders were free to leave.

Stand-Alone Group. The leaders in the Stand-Alone group completed the patrol and defense missions without the intervention of an instructor. Personnel during these training sessions consisted of up to10 leaders and one researcher. Upon entering the lab, the researcher instructed leaders to be seated at individual computer work stations. The researcher asked leaders to complete the Biographical Information Questionnaire and the Squad Leader Situation Judgment Test. Upon completion of these instruments, the researcher directed leaders to read carefully through a set of slides that included instructions for completing the patrol and defense missions (see Appendix J). The leaders were asked to follow the directions contained in the slides and complete the patrol mission first, followed by the defense mission. The researcher told leaders that only questions about using the computer and the SimFX software functions would be answered. The leaders were encouraged to work alone, to solve problems on their own, and to do their best regardless of their level of understanding of the simulation or the training experience.

During mission execution, the leaders received no feedback or guidance about their tactical performance, nor did they receive an after-action review. The researcher instructed leaders to complete the SimFX Leader Perception Questionnaire upon completion of the missions. They were then directed to an area outside the lab where they could ask questions about the SimFX training experience. The researcher used this opportunity to ask leaders about their overall impressions of the SimFX tool. Following these questions, leaders were free to leave.

Results

Biographical Information Questionnaire

All the leaders who participated in this experiment were non-commissioned officers, were the rank of Staff Sergeant, and had 11B (Infantryman) as their military occupational specialty (MOS). The average age of all leaders was 28 years, and the average time in service was 8.2 years. All the leaders had been deployed to either OIF or OEF at least once, and all had some form of combat experience. When asked if they had combat experience *as a squad leader during urban operations*, 74% reported they had. Those who had combat experience as a squad leader reported an average of 100 urban operations completed during deployment. On a scale of one to seven, one being the lowest rating and seven the highest, leaders reported their level of proficiency using computers. The mean rating of computer proficiency was 4.3 and the mean time per week using computers was 12 hours. Leaders reported that they had used an average of three Army simulations in the past year, and that they had trained an average of two times at the McKenna MOUT site at Fort Benning, Georgia. The mean amount of time for playing video games per week was 4.3 hours and the mean rating for video game proficiency using a seven-point scale was 4.2. As determined by Independent-samples *t*-tests, there were no significant differences between the Instructor-Facilitated and the Stand-Alone groups on any item on the Biographical Information Questionnaire.

Squad Leader Situation Judgment Test. Both groups scored a mean of 50% correct on this test. An Independent-samples *t*-test showed that leaders' mean scores did not differ significantly between groups ($\alpha = p \leq .05$).

Tactical Decision Making Rating Scales. A group of military subject-matter experts developed the patrol and defense missions to offer leaders opportunities to make effective and timely tactical decisions during the simulation exercise. The missions offered all leaders the same core of critical events and decision opportunities, regardless of group. The difference was that leaders in the Instructor-Facilitated group were given verbal prompts by the instructor to recognize critical events and implement decisions during mission execution, in addition to prompts given by the simulation. The leaders in the Stand-Alone group were prompted only by the simulation.

Analysis of Ratings of Tactical Decision Making. The leaders' responses to events presented during execution of the missions, and every other computer function they initiated, were recorded automatically by the SimFX program software. A group of military subject-matter experts analyzed records from each mission, and then rated leaders' tactical decisions at each critical event presented during execution and according to the ranking hierarchy shown in Table 1 above. These ratings were then analyzed to determine the impact that the presence of an instructor (versus no instructor) had on leaders' tactical decision making. A mixed factor repeated-measures ANOVA showed that there were no significant differences between groups on ratings for tactical decisions. However, the same analysis a significant trial effect with performance declining over missions[2] $F(1, 67) = 25.04$, $p = .001$, effect size (eta squared = .272). The mean ratings values (and standard deviations) for tactical decisions initiated during the patrol mission were 3.91 (0.26) and 3.98 (0.45) for the Instructor-Facilitated and Stand-Alone groups, respectively. For the defense mission, mean ratings values were 3.74 (0.21) and 3.72 (0.35) for the Instructor-Facilitated and Stand-Alone groups, respectively. There was no significant interaction. These results are shown in Figure 1.

[2] Results from previous training games evaluations using the same patrol and defense missions showed that the latter was by far the most difficult. Therefore, small group leaders were required to complete the patrol mission first. As such, the trial effect showing better tactical decision making during execution of the patrol mission was expected.

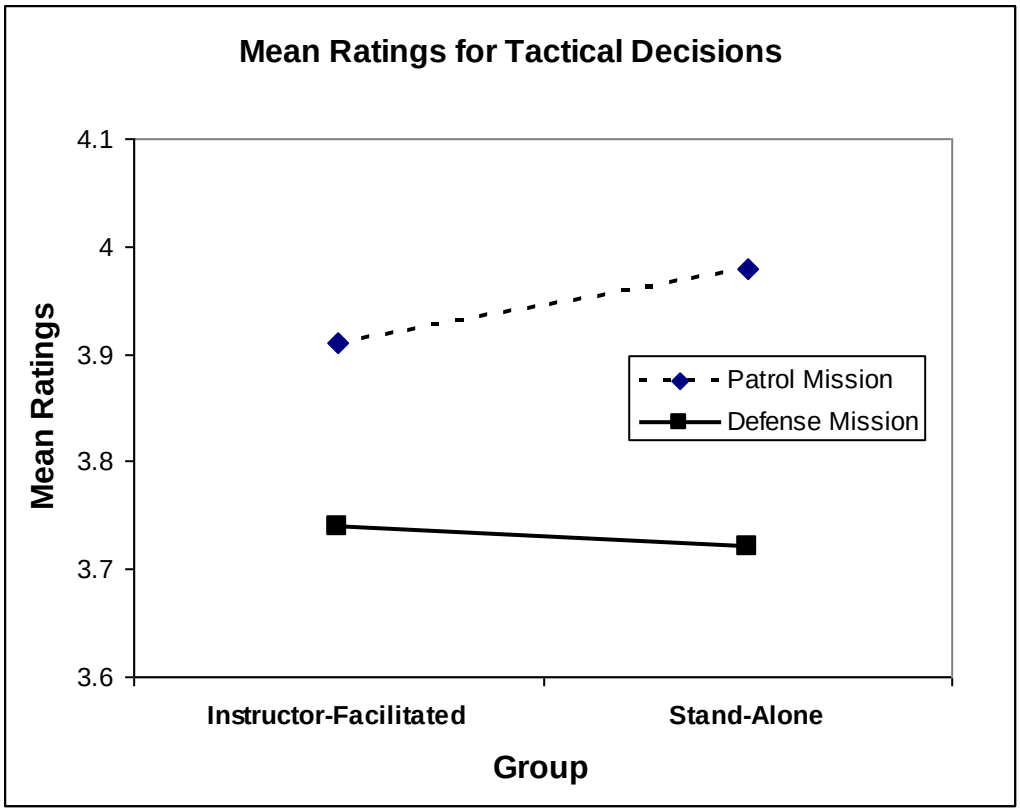

Figure 1. Mean ratings values for tactical decisions initiated during mission execution

Analysis of Mission Execution Times. A Mixed Factor Repeated-Measures ANOVA showed that the two groups of leaders did not differ significantly on the time they used to complete either the patrol or the defense mission. This analysis showed also that times to execute the missions within each group did not differ. These results suggested that the groups spent equivalent amounts of time executing the missions, and regardless of the mission, execution times were equivalent within each group.

Analysis of Individual Critical Events. The critical events upon which none of the leaders based tactical decisions during the missions are displayed in Table 2. These events represent those with which leaders had the most difficulty.

Table 2
Critical Events Upon Which No Leaders Based Tactical Decisions

Critical Event	**Patrol**	**Defense**
Informs platoon leader of weapons found.	*	
Follows platoon leader's instructions to secure weapons.	*	
Informs platoon leader of squad reaching CP 5.	*	
Informs platoon leader of squad reaching CP 6.	*	
Returns to dismount point and informs platoon leader.	*	
Requests Bradley support within village limits.	*	
Secures vehicle.	*	
Informs personnel of vehicle noise stopping.		*
Informs personnel of voices in vicinity of OP.		*
Informs personnel of shots heard vicinity of OP.		*
Informs personnel of OP zeroing their systems.		*
Informs personnel of ROE update.		*
Informs personnel of seven enemy Soldiers approaching from wood line		*
Orders squad to fire on approaching enemy Soldiers.		*
Denies permission to engage crowd.		*

Eleven of the 15 critical events for which no leaders based tactical decisions deal with reporting to superiors and subordinates, requesting support, and giving orders.

Independent-samples *t*-tests (using Bonferroni to correct for multiple tests) were used to determine if there were significant differences between groups on mean ratings values for each critical event upon which leaders based decisions. Table 3 shows the critical events for which significant group differences emerged.

Table 3

Critical Events for which Significant Differences Between Groups on Mean Ratings Emerged

Critical Event	**I-F Mean**	**S-A Mean**	***t***	***p* <**	**Patrol**	**Defense**
Receives intell update on stolen vehicles from platoon leader	5.80	1.77	9.38	0.01	*	
Conducts patrol as planned despite incident at church at CP1	5.85	4.92	2.86	0.01	*	
Arrives at CP 1 and performs SITREP	6.00	4.77	2.63	0.01	*	
Receives SITREP on broken sewer seals	5.80	1.62	10.90	0.01	*	
Reacts correctly to report of suspicious personnel at Building G	2.20	5.04	5.27	0.01	*	
Continues patrol as directed	6.00	5.42	2.13	0.04	*	
Calls BFVs forward	5.20	4.00	2.90	0.01	*	
Properly reacts to BFV hitting mine.	4.20	5.31	4.46	0.01	*	
Informs platoon leader of situation at CP 5.	4.00	2.15	3.30	0.01	*	
Formulates and informs team leaders of plan to search P4	2.00	4.38	5.66	0.01	*	
Plans for security and maneuver elements	3.25	5.00	2.94	0.01	*	
Informs team leaders of SUV explosion	3.00	4.42	2.31	0.03	*	
Informs personnel of vehicle noises	5.81	4.95	2.64	0.01		*
Informs personnel of vehicle sounds and PVT Jones status.	2.00	4.64	5.62	0.01		*
Informs team leaders of plan to defend against crowd.	1.00	4.59	9.05	0.01		*
Informs squad not to drink water - request water resupply	5.76	3.59	3.89	0.01		*
Sends appropriate personnel to get water.	5.76	3.73	3.77	0.01		*
Informs personnel of enemy in vicinity of OP.	2.00	3.86	3.56	0.01		*
Requests indirect fire on vehicles and dismounted enemy Soldiers.	6.00	4.18	3.65	0.01		*
Informs personnel of PVT Smith's sickness.	1.00	3.14	4.56	0.01		*
Requests assistance for PVT Smith's MEDEVAC.	5.52	3.59	3.45	0.01		*
Reconsolidates personnel after PVT Smith's MEDEVAC.	5.14	3.05	3.87	0.01		*
Coordinates for water resupply.	5.86	4.23	3.52	0.01		*
Informs personnel of crowd status and briefs defensive plan.	2.00	3.65	2.97	0.01		*
Requests UAV support and update on the OP.	6.00	2.05	9.22	0.01		*
Requests support for crowd control.	4.90	3.36	2.50	0.02		*

While differences between groups for individual critical events emerged, a clear pattern of the type or frequency of events did not.

SimFX Leader Perception Questionnaire. The SimFX Leader Perception Questionnaire was developed to document the reactions of leaders to their experiences with the simulation.

This questionnaire included a total of 41 items that were divided among six categories. Leaders rated the first 38 items by choosing one response from a seven-point scale, and completed items 39 through 41 by answering "Yes" or "No".

Analyses of Five Categories of Questionnaire Items. The first 38 items on this questionnaire represent the following five categories of interest: (a) overall training value, (b) tactical training value, (c) adaptability and decision making, (d) realism, and (e) motivation. Analyses were conducted to determine the internal consistency and reliability of the items in each category. Table 4 shows the results of these analyses.

Table 4
Internal Consistency and Reliability for Each Category of Items from the SimFX Leader Perception Questionnaire

Category of Items	**Cronbach's Alpha**	**Items from SimFX Leader Perception Questionaire**
Overall Training Value	.87	1 – 7
Tactical Training Value	.87	8 – 15
Adaptability and Decision Making	.77	16 - 24
Realism	.94	25 – 35
Motivation to Train	.75	36 - 38

Note: A Cronbach's alpha of at least .70 represents an acceptable level of reliability.

The ratings given by leaders for individual items were aggregated to form five new variables for analysis that represented the five categories of items shown in Table 4. In order to determine if there were group differences in ratings for the five categories of items, a One-Way ANOVA was conducted. Results of this analysis are shown in Table 5.

Table 5
Group Differences for Ratings on the Soldier Perception Questionnaire

Category of Items	***df***	**F**	***p***
Overall training value	1, 64	0.49	0.49
Tactical training value	1, 64	13.09	0.01
Adaptability and Decision Making	1,64	15.33	0.01
Realism	1, 64	0.35	0.55
Motivation to Train	1, 64	0.28	0.60

Group differences emerged for Tactical Training Value and for Adaptability and Decision Making. Mean ratings given by leaders in the Instructor-Facilitated group for these categories were significantly higher than those given by leaders in the Stand-Alone group. There were no group differences in responses for items 39 – 41 on the questionnaire.

Ratings Percentages for Selected Items from the SimFX Leader Perception Questionnaire. Results of leader ratings on individual items rated on a seven-point scale were

described in this section when at least 45 percent of the leaders chose either the lower three or the higher three ratings categories. When this was the case, the items were included in tables and the results were explained generally.

The ratings percentages for items relative to the Overall Training Value of SimFX are shown in Table 6. The majority of leaders believed that SimFX provided them with an effective virtual training experience and that it was desirable to use SimFX to gain experience as an Infantry squad leader.

Table 6
Ratings Percentages for Selected Items from the SimFX Leader Perception Questionnaire for Overall Training Value

Questionnaire Item	**Ratings % Low / High**
To what extent did the SimFX provide you with an effective virtual training experience?	14 / 48 Not at all / Very much
In your opinion, how desirable is it to use a simulated training exercise such as the SimFX to gain experience as an Infantry squad leader?	25 / 54 Not at all / Very

Four items from the Tactical Training Value category received ratings that met the criteria for inclusion in Table 7. The leaders' ratings suggested that SimFX provided meaningful practice for exercising command and control, but not for understanding how movement routes are designated according to terrain. Regarding the two questions about the perceived importance of an instructor, a majority of leaders believed that instructor feedback, coaching, and tactical guidance was important. In addition, leaders felt that a qualified instructor should guide them through an after-action review following the SimFX missions.

Table 7
Ratings Percentages for Selected Items from the SimFX Leader Perception Questionnaire for Tactical Training Value

Questionnaire Item	**Ratings % Low / High**
To what extent did your experience with the SimFX provide meaningful practice for exercising command and control over squad operations?	20 / 45 Not at all / Very much
To what extent did SimFX provide meaningful practice for understanding how movement routes must be designated according to the terrain?	50 / 25 Not at all / Very much
To what extent should a qualified instructor be present to provide you with feedback, coaching, and tactical guidance while you use the SimFX?	27 / 52 Never / Always
To what extent should a qualified instructor be present to guide you through a SimFX after-action review?	14 / 62 Never / Always

Seven items from the Adaptability and Decision Making category received ratings that met the criteria for inclusion and are shown in Table 8. The leaders believed that during the SimFX exercise they were given ample opportunities to adapt to emerging battlefield conditions and conditions in combat, and that they adapted fairly well during mission execution. Their ratings suggested also that SimFX permitted them to rehearse the decisions made by squad leaders during urban operations and to change their plans as a result of changing conditions and

emerging threats. The majority of leaders reported that they engaged in appropriate decision making during the exercise.

Table 8
Ratings Percentages for Selected Items from the SimFX Leader Perception Questionnaire for Adaptability and Decision Making

Questionnaire Item	**Ratings % Low / High**
To what extent were you given opportunities to adapt to emerging battlefield conditions during the SimFX exercise?	18 / 52 Not at all / Very much
How well did you adapt to emerging battlefield conditions during SimFX?	10 / 63 Not at all / Very well
To what extent can SimFX prepare you to adapt to emerging conditions in combat?	18 / 50 Not at all / Very much
To what extent did the SimFX permit you to rehearse the types of decisions an Infantry squad leader must make during urban operations?	19 / 54 Not at all / Very much
To what extent did SimFX allow you to make the tactical decisions that are made when leading a squad?	23 / 48 Not at all / Very much
How well did you make decisions as a squad leader during SimFX?	11 / 68 Not at all / Very much
To what extent did you change your plan during SimFX as a result of changing conditions and/or emerging threats?	19 / 49 No change / Complete change

The ratings for the category of items relative to the Realism of SimFX are shown in Table 9. The leaders believed that they were drawn into the events presented during the SimFX exercise, that the conditions of a squad mission in an urban environment were portrayed realistically, and that there were moments during the missions when they felt completely focused on leading a squad. In addition, their ratings suggested that the missions portrayed the events they experienced during squad-level unit training and that these events were relevant to the current operational environment. The actions made by friendly and enemy forces were perceived as realistic. In general, leaders were able to focus on squad leader experiences rather than on computer functions required to complete the missions.

Table 9
Ratings Percentages for Selected Items from the SimFX Leader Perception Questionnaire for Realism of SimFX

Questionnaire Item	**Ratings % Low / High**
How captivated or drawn in were you by events and actions presented in SimFX?	31 / 45 Not at all / Completely
How realistically did SimFX portray the conditions of a squad mission in an urban environment?	22 / 57 Not at all / Completely
Were there moments during SimFX when you felt completely focused on the task of leading a squad?	17 / 67 None / Frequently
To what extent did the scenarios used in SimFX portray what you experienced during squad-level unit training?	26 / 48 Not at all / Very much
To what extent were the SimFX missions relevant to current operational environment (COE)?	22 / 45 Not / Very
How realistically did SimFX describe actions made by members in your platoon?	27 / 45 Not at all / Completely
How realistically did SimFX describe actions made by the enemy?	27 / 48 Not at all / Completely
Overall, how much could you focus on the squad leader experiences created by SimFX rather than on the computer keyboard functions?	22 / 50 Not at all / Very much

As in previous training games evaluations (e.g., Beal, 2007; 2005; Beal & Christ, 2005), leaders believed that their motivations for using a game like SimFX were based on the desire to practice making squad leader decisions and learning combat skills. However, they were not motivated to use games by the desire for personal entertainment or having fun. These results are shown in Table 10.

Table 10
Ratings Percentages for Selected Items from the SimFX Leader Perception Questionnaire for Motivation for Training with SimFX

Questionnaire Item	**Ratings % Low / High**
How important is a desire to practice making squad leader decisions a reason for you to want to use SimFX?	20 / 60 Not at all / Very much
How important is the desire to learn combat skills a reason for you to want to use SimFX?	30 / 52 Not at all / Very much
How important is fun and personal entertainment a reason for you to want to use SimFX?	50 / 30 Not at all / Very much

When asked whether the SimFX training experience taught them something new, slightly less than half believed that it had. About 40% believed that they learned something new about how a squad leader should conduct Infantry urban operations, where as 46% learned something new about adapting to emerging battlefield conditions and making appropriate decisions. These results are shown in Table 11.

Table 11
Response Percentages for Leaders' Overall Opinion of the SimFX Training Experience

Questionnaire Item	**%Yes**
Did the SimFX training experience teach you something new about how a squad leader should conduct Infantry urban operations?	40
Did the SimFX training experience teach you something new about how a squad leader should adapt to emerging battlefield conditions?	46
Did the SimFX training experience teach you something new about how to make appropriate decisions as a squad leader during urban operations?	46

Relationships Among Variables. Regression analyses were conducted to determine the impact of biographical factors and situation judgment on tactical decision making and leader perceptions. Pearson bivariate correlations were also used to explore any other meaningful relationships between variables. The analyses revealed no significant impact of selected biographical factors on ratings for tactical decision making during mission execution ($\alpha = p \leq .05$). Regarding the impact of these factors on leader perceptions, those who reported having combat experience as squad leaders gave higher ratings for the tactical training value of SimFX (r (68) = .256, p = .039).

Discussion

This report documents the results from a controlled experimental effort to compare the impact of instructor-facilitated versus stand-alone game training methods on Infantry small unit leaders' tactical decision making. This section of the report includes a discussion of these results.

Squad Leader Situation Judgment Tests

The purpose for developing and administering a situation judgment test was to explore ways to predict game-based tactical decision making by using a lower fidelity data collection tool (i.e., paper-and-pencil test). The leaders' overall scores on the Squad Leader Situation Judgment Test were similar for both groups. These scores did not predict tactical decision making performance during SimFX missions, possibly because of the relatively small amount of variance.

Both the SimFX game and the Squad Leader Situation Judgment Test offer opportunities to leaders to make discrete decisions. However, the SimFX game provides a mission-based training exercise during which tactical decisions are made at specific, narrowly focused decisive points that are presented in series during a mission. The leaders' tactical decision making scores from SimFX are derived from their performance on a collection of these decision points within each mission. While there are multiple opportunities to implement tactical decisions, the context remains consistent throughout the mission.

Each of the 20 vignettes presented in the Squad Leader Situation Judgment Test represent a single point in time within a relatively narrow context, upon which one decision is based. A

leader's score on this test represents the total number of correct tactical decisions made for the 20 vignettes. While the types of decisions made during the Squad Leader Situation Judgment Test may share some conceptual similarities with those made during SimFX, it may be that the way a test score is derived or the contexts upon which decisions are made are too divergent from SimFX for statistical relationships to emerge between the test and SimFX.

One method for measuring situation judgment that might be a better predictor of tactical decision making during SimFX would be to present one or two expanded, multi-stage tactical vignettes, each with multiple decisive points upon which to base correct decisions. The test would present a different context in which decisions similar to those made during SimFX could be implemented. Tactical decision performance during both the situation judgment test and SimFX could be scored using the same technique and criteria. If the types of decisions made in both contexts shared enough similarities, and relationships between scores could be shown by statistical analysis, then the situation judgment test also could serve as a predictor or a criterion measure of tactical decision making during SimFX. Clearly, more research effort needs to be applied to the effective use of low-fidelity situation judgment tests to predict tactical decision performance during game training exercises.

Tactical Decision Making

The patrol and defense missions were developed to allow leaders to practice and gain additional experience with the critical events upon which squad leaders base tactical decisions during urban operations. While there were no differences in ratings for tactical decision making between groups, ratings were significantly higher for the patrol mission than for the defense within each group. These differences were probably due to the leaders' higher level of experience with patrol missions during training and deployment. Squad leaders who trained for or who were deployed in OEF and OIF tended to conduct many more patrol-oriented offensive missions than defensive missions, at least initially. The SimFX defense mission required leaders to make more tactical decisions about personnel related issues and fewer decisions about combat related procedures, with which leaders had more experience. These results were consistent with those from a previous evaluation in which leaders had lower ratings for their tactical decision making during the same defense mission (see Beal, 2007).

Leader Perceptions of SimFX.

The SimFX Leader Perception Questionnaire was developed to allow leaders to rate the extent to which they believed SimFX was an effective training tool. The leaders rated questionnaire items from the following five categories:

- Overall Training Value
- Tactical Training Value
- Adaptability and Decision Making
- Realism
- Motivation

The findings suggest that, regardless of the training method, leaders in both groups believed that SimFX provided adequate training value and levels of realism, and that they were motivated by a desire to practice combat skills and make decisions. They were not motivated by a desire to have fun playing a game. Yet, leaders in the Instructor-Facilitated group offered higher ratings for Tactical Training Value and Adaptability and Decision Making than leaders in the Stand-Alone group. This suggests that leaders whose SimFX training was facilitated by an instructor and who engaged in peer interactions perceived more value for tactical training and adaptability and decision making than leaders who learned and trained with the game on their own.

With respect to Anderson's (2003) theory, the type of interaction in which participating leaders engaged had no measured impact on their tactical decision performance. The leaders who interacted with their instructor and peers received ratings that were no better than leaders who were required to interact with training content only. This finding supports Anderson's theory that implies that if one mode of interaction is at a high level (e.g., peer-content) then the other two (e.g., peer-trainer and peer-peer) can be eliminated without degrading the training experience. Thus, the theory appears to be accurate when applied to small unit Infantry leaders' tactical decision performance.

When leaders' perceptions of the SimFX training exercise are taken into account, the findings do not support Anderson's theory. The leaders who interacted with an instructor and with their peers perceived significantly greater value of the tactical training and the opportunities to adapt and to implement tactical decisions, both of which represent the most important training objectives of the SimFX exercise. It might be assumed that the lower ratings offered by leaders in the Stand-Alone group were a function of a lower level of motivation that is sometimes associated with peer-content methods of training. However, there were no data to suggest that a lack of either intrinsic or extrinsic motivation was responsible for the lower ratings. During observations of previous instructor-facilitated and stand-alone game training with small unit Infantry leaders, the participants appeared to be actively engaged during the exercises, regardless of the training methods used. When asked, the leaders reported that it was their desire to learn combat skills and apply tactical decisions that sustained their motivation to train with games, even when the games themselves lacked sufficient tactical fidelity and psychological realism.

The leaders' perceived training value may be linked, at least in part, to the contingencies in the training environment and the performance expectations that are imposed by instructors, peers, and by the leaders themselves. While stand-alone systems and methods of training can provide pedagogic *opportunities* equivalent to those facilitated by instructors and peers, the environmental contingencies are reduced to those that are self-imposed and are void of any external reinforcement as a consequence for having taken the opportunities. The absence of external reinforcement may have the second-order effect of degrading leaders' perceptions of training value, even though tactical performance is not affected. On the other hand, when a functional relationship between meeting performance expectations and subsequent reinforcement from instructors and peers exists, the effect can be manifested in significantly higher ratings of perceived value and opportunities to perform, even though the actual opportunities are equivalent for both groups.

Conclusion

The findings reported here suggest that, under the controlled conditions imposed, leaders' tactical decision performance does not degrade when they conduct game training in the absence of instructors and peer interactions. However, leaders tend to perceive less training value when subjected to restrictions on their social environment. While these findings are specific to tactical game training with dismounted Infantry small-unit leaders, there are implications for the broader issue of the Army's trend towards distributed methods of instruction, particularly when those methods exclude the types of blended interaction that technology can provide.

Impact on Social Context and Leader Perceptions[3].

As the Army transitions some training from a residential to distributed instructional format, researchers are tending to focus on administrative and logistical concerns, course content and format, technology, and performance outcomes. How this transition may affect the social context of Army training, however, has received scant attention. This is an unfortunate gap in the research. Considering that real-time communications technologies are becoming widespread and will influence the future of Army training, it is essential to address issues concerning the benefits, costs, and characteristics of technologically-mediated social environments. A better understanding of how technologically-mediated communication will affect the perceptions of Soldiers and their social environment will allow decision makers to anticipate the costs and harness the benefits of blended training to Soldiers' professional development.

One perspective in the distributed learning literature downplays the role of the social environment in training. From this perspective, high quality interactions, whether between peer-instructor, peer-peer, or peer-content are understood as producing equivalent performance outcomes. Thus, these researchers argue for focusing on peer-content interactions, which also happen to be the least expensive and least time-consuming type of interaction. This argument makes some sense for the following reasons. First, the benefits of social interaction for learning and motivation are often ill-defined and not immediately apparent when compared to more concrete performance-based assessments, especially when these assessments demonstrate repeatedly no significant differences between face-to-face and online instructional modalities. Second, the promise of anytime, anywhere access to training (i.e., having personal freedom and control over one's own time) makes synchronous training less appealing at the outset. Third, synchronous communication produces a number of challenges to information networks, and has a tendency at times to produce a technologically-mediated social environment that is unappealing, even confusing, for those who have come to expect face-to-face communication. These reasons, among others, have led researchers to focus on administrative and content issues when investigating distributed learning, and to treat course content and performance evaluation as the most significant points of emphasis in developing and evaluating online training.

There are problems with an approach that neglects the social aspects of training. The content of a field manual or program of instruction (POI) teaches Soldiers *about* the formal

[3] This section of the report was adapted from a brief overview of Social Presence, contributed by Dr. Thomas Rhett Graves in April, 2008. Its purpose is to provide an appropriate conclusion with concepts that can be generalized to broader Army training issues, to promote discussion, and to alert researchers to an important, if neglected, area of investigation.

knowledge of the Army, not *how to be a Soldier* among other Soldiers. While expert knowledge of a content domain is important to being a Soldier, *being a Soldier* is also a social and professional identity that exists and is maintained within a network of professional relationships and friendships, shared social norms, and an off-the-books mutual understanding of what that social role means. Being a professional Soldier is about being adept with, and comfortable in, practicing professionally among other Soldiers. It is a simple fact, too often overlooked, that professional practice is at its core a social phenomenon. Distributed training, without considering the essential social aspects of Army training, serves to disrupt the context of professional practice and professional identity, and may be demoralizing for an isolated Soldier trying to get through his or her requisite online coursework in order to be eligible for a new job or promotion. Professional training is as much a matter of connecting with one's professional cohort and mentors—sharing in a professional experience—as it is becoming expert in the facts associated with a knowledge domain and proficient in the tasks associated with performance.

Technology can make training better, and more engaging, when it facilitates connection among Soldiers and is not used to substitute for social connection. This area of research has as its goal to develop the meaning of social presence in Army training and identify what it may and may not contribute to a technologically-mediated training environment.

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APPENDIX A

Biographical Information Questionnaire

Print your full name_____

Please fill in the blanks or circle the appropriate responses for each item below.

1. What is your age? _____ Years

2. MOS _____

3. Rank _____

4. Time in service Years _____ Months _____

5. Have you had combat experience as a squad leader during urban operations?

   _____ Yes _____ No

   If you answered yes, then how many urban operations did you complete as a squad leader? 0 1 2 3 4 5 6 7 8 9 10 11 12+

   If more than 12, then how many?_____

6. Your level of proficiency in using computers is:
   1 2 3 4 5 6 7
   low average high

7. How many hours per week do you use computers? _____ hours per week

8. How many times in the last year have you used Army simulations?
   0 1 2 3 4 5 6 7 8 9 10 11 12+
   If more than 12, then how many?_____

9. How often have you trained at the McKenna MOUT site (not including demos)?

   _____ not since basic training _____1-3 times _____4-6 times

   _____ More than 7 times

10. How many hours per week do you play video games? _____ hours per week

11. Your level of proficiency in playing video games is:
    1 2 3 4 5 6 7
    low average high

APPENDIX B

Squad Leader Situation Judgment Test

Print your full name_____

Instructions:
You will read a series of combat situations. Choose the ***best*** response to the given situation. In each situation you are the squad leader confronted with a problem. You should consider each of the situations as independent from one another.

Each situation is a matter of life and death; that is, you must respond within seconds or friendly Soldiers will likely die. You DO NOT have time to take multiple actions; you can only choose **one** of the available options as your ***best*** response. Please select the action you would take immediately, knowing that lives could depend on your decision.

Circle the letter of the *best* response.

---

1. While on a mission to clear several buildings your lead team enters a house and walks into a trap. The enemy has opened fire inside the house and you are forced to leave the building. You try to call for a Bradley Fighting Vehicle to provide support, but radio communications have failed. What do you do now?

   a. Withdraw from the area until radio communications can be reestablished.
   b. Immediately ask your TLs how much ammo they have left to determine resources you have available.
   c. Look for a different way into the house that would take the enemy by surprise.
   d. Send a runner to link-up with an adjacent unit for support.
   e. Task a portion of your element to suppress the house while you lead the assault element to accomplish your mission.

2. Your men have been fighting on foot for the past 10 days with no more than 2 hours of sleep per night. During a brief period of rest PFC Smith becomes delirious and begins asking where his dog from home is. Several of the guys assist in calming him down. You then receive orders to move out immediately. What do you say to your men who have just witnessed this situation?

a. “We have orders to move out, follow me.”
b. “I know this is rough, but we’ve got a job to do. Let’s get it done.”
c. “I know you’re tired, but I’m counting on you. I know you’ll do your best as always. We can pull through if we do this together.”
d. “SPC Jones, give PFC Smith a hand. We’ve got to move.”
e. “We must pull it together men. We can rest when we get to a more secure location. Right now I need you to give me 100%.”

3. Your mission is to secure a three-story building and provide overwatch on a key intersection in order to provide cover for follow-on troops. Time is of the essence because the other unit should be moving through the intersection in approximately 10 minutes. The battalion intelligence officer just reported possible enemy activity in the building across the street. How do you respond?

   a. Radio Higher and request another unit be sent to secure the building across the street.
   b. Prepare to clear the building across the street.
   c. Secure the target building first in order to set up the overwatch team and then send an element to clear the second building.
   d. Execute a simultaneous assault on both buildings.
   e. Position an element to suppress the building across the street with small arms if necessary, and then secure the target building. Then tell your men to overwatch both the intersection and the second building.

4. As you are moving to link up with another squad you pass a church. A small group of women and children come running out toward you. You are aware that many civilians have deserted the area and it seems odd that they are here in the open. What do you do?

   a. Find available cover and concealment and prepare to defend yourselves.
   b. Remind your Soldiers of the Rules of Engagement.
   c. Order the civilians to “STOP” and put their hands in the air.
   d. Fire a warning shot in the air to get the group’s attention.
   e. Tell Soldiers to aim their weapons at the group, but not to fire unless the group proves to be hostile.

5. While engaged in fighting with insurgents in a small town you hear machine gun fire increasing several blocks away. You are currently positioned in a one-story concrete building in the middle of the block. You are one of 3 squads in the immediate vicinity. What action do you take?

   a. Radio Higher HQs to provide a SITREP.
   b. Check the ammo and equipment status of your men.

c. Contact each of the other squads and let them know what you're hearing; ask if they have any further information.
d. Continue to pull security and await further instructions.
e. Do a map recon and tentatively plan a safe and efficient route that could move your unit to where the action is.

6. You are the 1st Squad squad leader and are moving toward your link-up point when you look down an alley and see 2nd Squad moving in the opposite direction from the target area. You received no radio communications about any changes to the original plan. What action should you take?

a. Radio your fellow squad leaders in the vicinity to find out what's going on.
b. Radio Higher HQs and request an update on the link-up point.
c. Set up a security halt and send two men down the alley to find out what is going on.
d. Drive on with your original mission to the link-up point.
e. Change your unit's direction of movement in order to intercept the adjacent squad and find out what's going on face-to-face.

7. While moving toward an intersection that you are to secure, your unit receives small arms fire from the second story window of a 2-story building you are approaching. Movement is also detected on the lower level. It was thought that the buildings were deserted, but Higher now orders you to destroy enemy insurgents in any of the 6 buildings along your way to the intersection. What instructions do you provide to your TLs?

a. Remind them of Rules of Engagement.
b. Stop and secure the area.
c. Talk to the locals as we pass and ask for information about suspicious activity.
d. Assault the building quickly before the enemy disperses.
e. Keep personnel together and keep others informed of where you are and what you encounter.

8. You are on patrol in BFVs. You are in the lead BFV, while your Bravo TL is in another BFV, 600 meters behind you. Midway through the patrol, his vehicle is attacked by RPG and small arms fire. He reports his situation to you. What is your response?

a. Reply, *"Roger, continue to develop the situation."*
b. Go back and assist to fight off the attack
c. Call for reinforcements.
d. Find some cover and radio your commander.
e. Search and find the insurgents.

9. You just cleared a road leading into a city that may be filled with enemy insurgents. You are approaching a key area where concealment is difficult.

You are using smoke to mask your movements, but have inhibited your ability to monitor enemy actions and responses. You receive enemy fire. What would you do?

a. Radio your platoon leader for any new information about enemy activity in the town.
b. Direct an overwatch/sniper team into a position in a nearby building to see over/past your smokescreen to engage any observed enemy.
c. Use aerial command and control elements to scout out enemy activities.
d. Wait until dark and recon the site.
e. Request armored vehicles.

10. Your three vehicle convoy has been conducting a presence patrol on the outskirts of your unit sector. Approximately 200 meters to your immediate front, you hear and see what seems to be a hasty ambush being executed on coalition flatbed and cargo trucks. What actions do you take?

a. Radio in a quick SALUTE report to higher headquarters and monitor the situation from a distance. You might cause more confusion if you rush to the convoy's aid.
b. Issue a quick FRAGO to your patrol on how you might deploy in support of the operation if needed.
c. Place your vehicles in a flank position in order to coordinate indirect fire on the insurgents.
d. Immediately pull 360 degree security. It's possible that the commotion up ahead is a distraction or baited-ambush. The real ambush may be designed for you when you move in to support.
e. Immediately deploy to support the unit under attack while reporting your actions to higher headquarters enroute.

11. While getting ready to enter a two-story house that you know has wounded enemy inside, you note that there is a front door, a front window with bars, and a side window. One of your fire teams is running low on ammo. You have just received fire from inside the building. What action do you take?

a. Send an element to recon additional information about the house.
b. Assemble your TLs to assess situation and discuss options.
c. Instruct your TLs to position themselves at the possible exits and wait for the enemy to move.
d. Take a quick assessment of squad equipment to see if you have anything capable of making an explosive breach.
e. Isolate the house and have your interpreter order the inhabitants to lay down their weapons or you will be forced to demolish the house.

12. The squad's mission is to clear and secure two buildings and await further orders. You have secured your objective and then you hear that another unit

down the street has stumbled into a hostile situation and has sustained several casualties. What do you do?

a. Radio Higher HQs for permission to leave your building and provide support to the other unit.
b. Send half of your unit down the street and leave half at your objective.
c. Radio the other unit and tell them you're on the way.
d. Maintain your unit in a security posture. If you're needed down the street, someone will inform you.
e. Start task organizing your unit in order to send an element to assist down the street, if needed.

13. After several hours of defending your position within a two-story building from snipers and rebel insurgents, a lull in the fighting occurs. Radio communications indicate that a small group of five or six insurgents are in the vicinity (4-5 blocks away) and are moving in your direction. What do you do?

a. Radio Higher HQs for more information and guidance.
b. Inform your TLs of the possible new threat in order to keep them aware.
c. Check the ammo/water/equipment status of your unit.
d. Double check that your SAWs are positioned in the best locations to cover the ingress routes to your location.
e. Position men in observation posts outside of the building in order to provide early warning.

14. Your unit's task is to breach and secure a foothold in Building #1. Your support element, tasked with suppressing the building, throws smoke in order to obscure the assault team's entry. As the assault team leader enters through a window he encounters a booby-trap and is KIA. Another member of the assault team appears disoriented from the blast, stalling your breach into the building. What do you do?

a. Call for a medic, throw more smoke, and pull the casualties to a safe location away from the building.
b. Order one man to tend to the disoriented man and then lead the rest of the assault element into the breach.
c. Look for an alternate entrance into the building.
d. Bypass the casualties and send the assault team into the breach.
e. Report the casualties to Higher HQs and request another unit to help support your breach mission.

15. During an ambush, your squad has been separated from the platoon. You start to receive small arms fire and move to a damaged concrete building for cover. Your M249 squad automatic weapon (SAW) gunner begins to lay down suppressive fire but this only causes the enemy fire toward your location to

intensify. You believe that the rest of your platoon is moving to the east, but radio communications is unreliable. What action do you take?

a. Order your SAW gunners to shoot only if they have an exact location on the enemy.
b. Attempt to establish radio communications to find out where the rest of your unit is located.
c. Send two men to determine if they can locate the rest of your platoon.
d. Move the entire squad to the east, toward where you believe the rest of the platoon is located before the enemy pins you down.
e. Check your security perimeter and remain where you are. The platoon is probably looking for you and attempting to regain contact.

16. While on patrol at 0200 you pass a set of government buildings for the third time. A call comes in from Higher telling you to report back to base right away. One of your subordinates says, *"Sir, there is a delivery van that wasn't there before."* You haven't had any incidents in the last week, and the incident the week before was only a small group of rioters who were unhappy about the new curfew. What do you do?

a. Comply with orders and head back.
b. Radio Higher for permission to search or destroy the vehicle.
c. Stop the unit and send an element to assess the vehicle.
d. Note the location of the vehicle and report it to the S-2; ask if vehicles were used in neighboring villages to attack government buildings.
e. Provide SITREP to Higher and request instructions.

17. When returning to your compound after a routine patrol the civilian traffic in front of you is backed up. Your unit is traveling in reinforced HMMWVs. You notice several groups of children along the side of the road who are waving to you. The lead vehicle begins to move when an explosion occurs in front of it. The children and civilians along the road are screaming. You receive small arms fire and realize that the enemy is firing from somewhere behind where the children are grouping together. How do you respond?

a. Order your men to break contact.
b. Move your unit out of the kill zone.
c. Find out if your men have sustained any injuries.
d. Request reinforcements.
e. Dismount the squad from its current location and have the Soldiers move toward the firing.

18. You are patrolling on foot with several local police in training attached to your unit. The buildings in the area are mostly 3-story and made of concrete. As you move past an alleyway fire breaks out from down the alley and overhead. Insurgents pop up on rooftops as your men scramble to return fire. In the

meantime the local police huddle together near the wall of a concrete building. What action do you take?

a. Run to the police and tell them to spread out.
b. Yell to your men to instruct the police what to do.
c. Focus on returning fire and engaging the insurgents.
d. Question the police trainees to determine if they knew this was an ambush.
e. While seeking cover, physically grab the police and move them to cover.

19. Your squad's mission was to clear and secure a building on the outskirts of town. You have successfully completed your mission, your men are resting, and you are monitoring the radio. You hear gunfire and another squad leader reports that his squad is being attacked. How should you respond?

a. Continue to monitor the radio for further information.
b. Alert your squad and go to 100% security.
c. Begin preparation for your squad to assist the other squad.
d. Plan to leave a fire team to secure your building in the event you are directed to assist the other squad.
e. Conduct a terrain analysis of routes to reach the other squad.

20. Your squad is advancing into possible hostile territory. It is 0100. You hear noises and people start running away from your location. What do you do?

a. Move quickly and attempt to halt fleeing people.
b. Advance at a slow and measured pace until you are certain of what is ahead
c. Call helicopters in to scan the area using thermal sights.
d. Fire three warning shots.
e. Call your adjacent squad to see if they can block people from running away.

APPENDIX C

Mission Development

The missions were developed by Army subject-matter experts using Field Manuals (FM) 7-8, Department of the Army (DA, 1992) and 3-21.71 (DA, 2002) as reference materials. The basis for development of the scenarios was drawn from a report by Wampler, Blankenbeckler, and Dlubac (2004). In addition, the scenario developers incorporated lessons learned from current tactics used in Operation Iraqi Freedom (OIF) and information from interviews with OIF combat veterans.

There were two missions developed in support of this experiment: patrol and defense. In the patrol mission the leader had two Bradley Fighting Vehicles attached to him to provide fire support and armor protection, if needed. The leader had also the use of a TALON unmanned ground vehicle with cameras mounted, but no weapons. The squad was part of a platoon with four BFVs attached. Two squads performed presence patrols, with one moving to the west of the village, and with the leader's squad moving to the east of the village. A third squad provided protection for the Bradley Fighting Vehicles at the south end of the village. The rules of engagement dictated that the Bradley Fighting Vehicles could not move through the village, but they could move on the outskirts of the village. They could fire also into the village on the squad leader's command.

During execution for the patrol mission the squad leader was faced with events like seals broken on the sewer system, two stolen vehicles (a white SUV and a police car), suspicious activity reports from the other squad about a building outside his sector, an enemy Toyota pickup truck with a .50 caliber machinegun mounted in the bed, evacuating casualties suffered during the engagement of the technical vehicle, using the Bradley Fighting Vehicles to engage the technical vehicle, evacuating wounded with the Bradley Fighting Vehicles, broken down Bradley Fighting Vehicles (e.g., thrown track), suspicious activity in a particular building, clearing the building, sighting a stolen police car, reports from the other squad of sighting a stolen SUV and its subsequent destruction as a result of an improvised explosive device, and hostile civilians inside the town. The squad leader reported crossing all checkpoints, of which there were five. The mission was designed to last about 45 minutes.

In the defense mission the participant assumed the role of leader of a dismounted Infantry rifle squad occupying a two story, eight-room building in a small village based on the McKenna MOUT site at Fort Benning, Georgia. The leader's immediate tasks were to defend the building and to place an observation post 300 meters to the front of the building. The squad was part of a larger force consisting of one dismounted Infantry platoon. The observation post placement was directed by the platoon leader in the operations order that was given the participating leader at the beginning of the exercise. The operations order dictated the rules of engagement.

During the mission execution the participating leader had to face hostile civilians leaving a town meeting at the church and moving toward the building being occupied by the leader and his squad. Threats included an armed civilian who may have fired upon the squad, a dismounted enemy squad moving from the north toward the leader's observation post, two Soviet style BMP Infantry fighting vehicles approaching the village from the north, snipers, sick squad members with needs for treatment and evacuation, and improvised explosive devices placed in strategic locations throughout the town. Mission execution for the defense scenario was designed to last approximately 45 minutes.

APPENDIX D

PATROL MISSION TACTICAL DECISION RATING SCALE	
Tactical Decision Ratings	
Failed to recognize the need to respond - as result did nothing.	1
Recognized need to respond - did not respond.	2
Recognized need to respond, implemented poor decision - results negative.	3
Recognized need to respond, implemented poor decision - results positive.	4
Recognized need to respond, implemented appropriate response - results negative.	5
Recognized need to respond, implemented appropriate response - results positive.	6
Prompt - prompted by O/C to respond (to be combined with other rating)	PR
Not applicable	na

Critical Event	**Rating**
1. Squad arrives at correct dismount point.	
1.a. SL informs TLs of intell update (stolen vehicles).	
1.b. SL conducts patrol as planned (proper route/sequence).	
1.c. SL informs PLs of CP 1.	
1.d. SL informs TLs of broken sewer seals.	
1.e. SL informs TLs of suspicious personnel reported by first SL.	
1.f. SL continues patrol as directed.	
1.g. SL informs PL of CP 3.	
2. SL informs PL of CP 4.	
2.a. SL properly reacts to initial enemy contact.	
2.b. SL calls Bradleys forward using appropriate formation (one goes, one follows).	
2.c. SL informs PL of enemy contact.	
2.d. SL properly reacts to Bradley hitting mine.	
3 SL reports batle damage assessment (Bradley) to PL.	
3.a. SL issues instructions to Bradleys.	
3.b. SL continues patrol in proper sequence.	
3.c. SL informs PL of suspicious activity in bldg P4.	
3.d. SL informs PL of CP 5.	
3d. 1 Option leave UGV for surveliance on P4	
3d. 2 Option Use/Reposition a Bradley to keep surveliance on P4	
3.e. SL follows PLs instructions to continue patrol.	
4. SL formulates and informs TLs of plan to search P4.	
4.a. SL informs PL of weapons found.	
4.b. SL followed PLs instructions to secure weapons.	
4.c. SL informs PL of CP 5.	
4.d. SL informs PL of CP 6.	
4.e. SL returns to dismount point and informs PL.	
5. SL formulates and informs TLs of plan to secure vehicle in his sector.	
5.a. SL request the UGV to inspect the vehicle.	
5.b. SL plans for a security and manuver element.	
5.c. SL informs TLs of explosion.	
5.d. SL request Bradley support within village limits.	
5.e. Squad secures vehicle.	

APPENDIX E

DEFENSE MISSION TACTICAL DECISION RATING SCALE	
Tactical Decision Ratings	
Failed to recognize the need to respond - as result did nothing.	1
Recognized need to respond - did not respond.	2
Recognized need to respond, implemented poor decision - results negative.	3
Recognized need to respond, implemented poor decision - results positive.	4
Recognized need to respond, implemented appropriate response - results negative.	5
Recognized need to respond, implemented appropriate response - results positive.	6
Prompt - prompted by O/C to respond (to be combined with other rating)	PR
Not applicable	na

Critical Event	**Rating**
1. SL emplaced OP as directed w/ appropriate personnel.	
1.a. SL assigned SUGV to OP.	
1.b. SL positions himself with short team.	
2. SL informs personnel of crowd leaving church.	
3. SL informs personnel of vehicle noises heard by OP.	
3.a SL request UAV over flight.	
4. SL reports Pvt. Jones sickness.	
4.a. SL uses appropriate personnel to EVAC Pvt. Jones.	
4.b. SL reconsolidates personnel ensuring no one is left alone.	
5. SL request permission to pull in OP	
5.a. SL request indirect fire on BMPs.	
5.b. SL informs personnel of crowd, vehicle, and Pvt. Jones status.	
6. SL informs TLs of plan to defend against crowd.	
7. SL informs personnel of vehicle noise stopping.	
8. SL informs personnel of Pvt. Jones being EVACed to BN CCP.	
9. SL Informs squad not to drink water - request water resupply.	
9.a. SL request water resupply.	
9.b. SL sends appropriate personnel to get water.	
10. SL informs personnel of seven enemy Soldiers dismounting vicinity of OP.	
10.a. SL request indirect fire on vehicles and dismounted enemy Soldiers.	
11. SL informs personnel of 3rd PLT receiving sniper fire.	
12. SL informs personnel of Pvt. Smith's sickness.	
12.a. SL request assistance EVACing Pvt Smith.	
12.b. SL uses appropriate personnel to EVAC Pvt. Smith.	
12.c. SL reconsolidates personnel after EVACing Pvt. Smith	
12.d. SL coordinates for water resupply.	
13. SL orders OP to return to squad location.	
13.a. SL Informs personnel of voices in vicinity of OP.	
13.b. SL informs personnel of shots heard in vicinity of OP.	
13.c. SL informs personnel of crowd status and briefs defensive plan.	
13.d. SL Informs personnel of OP zeroing their systems.	
13.e. SL request support and update from UAV on the OP.	
14. SL informs personnel of ROE update.	
14.a. SL informs personnel of crowd status and initiates defensive plan	
14.b. SL informs personnel of seven enemy Soldiers approaching from woodline.	

14.c. SL orders squad to fire on approaching enemy Soldiers.	
14.d. SL denies permission to engage crowd.	
14.e. SL request support for crowd control.	

APPENDIX F

SimFX Squad Leader Perception Questionnaire

Print your name_____

Your responses to items in this questionnaire should be based on your experience using SimFX. Respond to the following questions by marking an "X" in the appropriate box of the 7-point scale.

Part 1. Overall Training Value of SimFX

1. To what extent did SimFX provide you with an effective training experience?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT VERY MUCH

2. In your opinion, how desirable is it to use a training tool like SimFX to gain experience as an Infantry squad leader?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL DESIRABLE SOMEWHAT DESIRABLE VERY DESIRABLE

3. How would you describe the amount of time you used SimFX?

|_____|_____|_____|_____|_____|_____|_____|
TOO MUCH TIME RIGHT AMOUNT OF TIME NEED MORE TIME

4. How challenging was the overall experience provided by SimFX?

|_____|_____|_____|_____|_____|_____|_____|
NOT CHALLENGING MODERATELY CHALLENGING VERY CHALLENGING

5. In your opinion, did SimFX have a valuable impact on helping you to better understand how an Infantry squad is led during urban operations?

|_____|_____|_____|_____|_____|_____|_____|
NO VALUE SOME VALUE GREAT VALUE

6. In your opinion, will using SimFX have a valuable impact on preparing you to lead an Infantry squad <u>in your unit</u>?

|_____|_____|_____|_____|_____|_____|_____|
NO VALUE SOME VALUE GREAT VALUE

7. In your opinion, will using SimFX have a valuable impact on preparing you to lead an Infantry squad in combat?

|_____|_____|_____|_____|_____|_____|_____|
NO VALUE — SOME VALUE — GREAT VALUE

Part 2. Tactical Training Value of SimFX

8. To what extent did SimFX provide meaningful practice for exercising command and control over squad operations?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL — SOMEWHAT — VERY MUCH

9. To what extent did SimFX provide you with opportunities to practice reacting to enemy contact during urban operations?

|_____|_____|_____|_____|_____|_____|_____|
NO OPPORTUNITIES — SOME OPPORTUNITIES — MANY OPPORTUNITIES

10. To what extent did SimFX provide meaningful practice for understanding how squad-level fire control measures are executed?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL — SOMEWHAT — VERY MUCH

11. To what extent did SimFX help you to better understand the influence of METT-TC factors on leading a squad?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL — SOMEWHAT — VERY MUCH

12. To what extent did SimFX provide meaningful practice for understanding how squad-level movement to contact is controlled?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL — SOMEWHAT — VERY MUCH

13. To what extent did SimFX provide meaningful practice for understanding how movement routes must be designated according to the terrain?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL — SOMEWHAT — VERY MUCH

14. To what extent should a qualified instructor be present to provide you with feedback, coaching, and tactical guidance while you use SimFX?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL REQUIRED — SOMEWHAT REQUIRED — VERY MUCH REQUIRED

15. To what extent should a qualified instructor be present to guide you through a SimFX after-action review?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL REQUIRED — SOMEWHAT REQUIRED — VERY MUCH REQUIRED

Part 3. Adaptability and Decision-Making With SimFX

16. To what extent were you given opportunities to adapt to emerging battlefield conditions during the SimFX exercises?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL — SOMEWHAT — VERY MUCH

17. How well did you adapt to emerging battlefield conditions during SimFX?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL WELL — SOMEWHAT — VERY WELL

18. To what extent can SimFX prepare you to adapt to emerging conditions in combat?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL — SOMEWHAT — VERY MUCH

19. To what extent did SimFX permit you to rehearse the types of decisions an Infantry squad leader must make during urban operations?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL — SOMEWHAT — VERY MUCH

20. To what extent did SimFX allow you to make the <u>tactical</u> decisions that are made when leading a squad?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL — SOMEWHAT — VERY MUCH

21. How well did you make decisions as a squad leader during SimFX?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL WELL SOMEWHAT VERY WELL

22. To what extent did SimFX ***add*** to your unit training in learning the decisions associated with effectively leading an Infantry squad during urban operations?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT VERY MUCH

23. To what extent did you change your plan during SimFX as a result of changing conditions and/or emerging threats?

|_____|_____|_____|_____|_____|_____|_____|
NO CHANGE SOME CHANGE COMPLETE CHANGE

24. Do you believe your SimFX missions would have been more successful if you had made different decisions during execution?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL MAYBE ABSOLUTELY

Part 4. Realism of SimFX

25. Was the overall realism of SimFX good enough to provide an effective training experience?

|_____|_____|_____|_____|_____|_____|_____|
NO WHERE NEAR GOOD ENOUGH APPROACHING GOOD ENOUGH MOST DEFINETLY GOOD ENOUGH

26. How captivated or drawn in were you by events and actions presented in SimFX?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT COMPLETELY

27. How realistically did SimFX portray the conditions of a squad mission in an urban environment?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT COMPLETELY

28. Were there moments during SimFX when you felt completely focused on the task of leading a squad?

|_____|_____|_____|_____|_____|_____|_____|
NONE OCCASIONALLY FREQUENTLY

29. To what extent did the scenarios used in SimFX accurately portray what you experienced during squad-level unit training?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT VERY MUCH

30. How much were SimFX experiences consistent with your experiences during urban operations field training exercises?

|_____|_____|_____|_____|_____|_____|_____|
NOT CONSISTENT MODERATELY CONSISTENT VERY CONSISTENT

31. To what extent did SimFX accurately simulate the tasks and conditions specified in current squad-level battle drills?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT VERY MUCH

32. To what extent were the SimFX scenarios relevant to the current operating conditions (COE)?

|_____|_____|_____|_____|_____|_____|_____|
NOT FAST MODERATELY FAST VERY FAST

33. How realistically did SimFX describe actions made by members in your platoon?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT COMPLETELY

34. How realistically did SimFX describe actions made by the enemy?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT COMPLETELY

35. Overall, how much could you focus on the squad leader experiences created by SimFX rather than on the computer keyboard functions?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT VERY MUCH

Part 5. Motivation for Training With SimFX

36. How important is a desire to practice making squad leader decisions a reason for you to want to use SimFX?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT VERY MUCH

37. How important is the desire to learn combat skills a reason for you to want to use SimFX?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT VERY MUCH

38. How important is fun and personal entertainment a reason for you to want to use SimFX?

|_____|_____|_____|_____|_____|_____|_____|
NOT AT ALL SOMEWHAT VERY MUCH

Part 6. Overall Opinion of the SimFX Training Experience

39. Did SimFX teach you something new about how a squad leader should conduct Infantry urban operations? **Circle one: Yes No**

40. Did SimFX teach you something new about how a squad leader should adapt to emerging battlefield conditions? **Circle one: Yes No**

41. Did SimFX teach you something new about how to make appropriate decisions as a squad leader during urban operations? **Circle one: Yes No**

Please make any other comments you wish to make about SimFX and its training value below.

APPENDIX G

The Simulation Environment

The ARI Warfighting Experimentation Lab consists of ten computers, a network hub, a simulated radio system, and an after action review/data retrieval system. There are four Soldier stations that consist of Dell ®Dimension 8300™ computers with a 3 gigahertz (GHz) Pentium 4 processor, equipped with two partitioned drives with 112 gigabytes (GB) of storage space, 1GB of Random Access Memory (RAM), a combined digital video drive (DVD) and compact disc rewritable (CD-RW) drive, a SoundBlaster® compatible soundcard, two network interface cards, an 18 inch flat screen flat panel monitor, and a 128MB PCI Express™ x16 ATI Radeon™ X300 SE graphics card. Each station is equipped also with a headset and individual controller for the simulated radio system. Stations 6 and 8 are equipped with a remote interface unit and Stations 2 and 8 have a hand-held terminal for the simulated radio system. Each computer has Microsoft Office 2000 ®, and the Advanced Interactive Systems ® Soldier Visualization System™ (SVS) Version 2.1 installed. The operating system is Windows XP Professional Edition®.

There are six control station computers. Four are identical to the Soldier workstations with the following exceptions:

- Station 1 is the Battle Master station and has the Battle Master SVS software installed which allows attachment of entities and operation in the stealth mode. Station 1 also has a remote interface unit, a hand-held terminal, and a headset.

- Station 2 is the OneSAF OTB station. It does not have SVS installed, but rather Version 2 of OneSAF OTB. Instead of Windows XP Professional® as an operating system, Station 2 uses Linux Red Hat Version 9.0 ™. Station 2 also has a radio simulation system consisting of the headset and hand-held terminal.

- Station 3 is the audio logger computer and stores all the simulated radio system traffic. It is a Dell 8300 identical to the Battle Master station, except it does not have SVS installed. However, it does receive data from the Digital Audio Control System to record the audio transmissions and data.

- Station 4 is the logger station. It is identical to Station 1, except that it stores the data created by the Virtual Soldier Simulation Assessment (ViSSA) computer. It has no simulated radio system.

- Station 9. The computer at the center of the console underneath the network hub is the Digital Audio Control System. It is the primary

integrator of communications traffic, and must be programmed with a communications model (done by the OneSAF OTB operator) for each scenario. The monitor and keyboard for the Digital Audio Control System are collocated.

- Station 10. The computer at the far end of the control bank is used to set up or program to capture selected events. It has the ViSSA assessment tool installed.

- Network Hub: The network hub on top of the Digital Audio Control System computer connects all the stations and computers together.

- System Layout. The system layout for the Warfighting Experimentation Lab is shown in the photos below.

Warfighting Experimentation Lab

Individual Work Stations

Control Stations

APPENDIX H

Platoon OPORD for Patrol Mission

Here's the ***situation*** for our presence patrol in the village of McKenna – we are currently faced with the La Ban militia, which was pushed out of this village by the unit of action that we just relieved. The La Ban militia unit currently has withdrawn to the north side of Higley Hill. The unit, probably originally company sized, is now down to about 15-20% strength. They have high quality small arms weapons, and are moderately well trained. They appear to be low on ammunition and supplies.

The local population still has about 25 or so folks in the area that are sympathetic to the La Ban insurgents and do not like Americans. Some of them may belong to the La Ban militia that is north of us and are collecting intel on our forces here in McKenna. The people are openly hostile to our presence.

Our company is currently defending the terrain west of McKenna, and the battalion is defending along a line that generally follows the 04 north-south gridline. The unit on our left is 2d Platoon from our own company, and the unit on our right is Bravo Company, 2d Battalion 59th Infantry. The CO says it is 2d Platoon of Company B, 1st of the 59th Infantry.

1st Platoon's ***mission*** is to conduct a presence patrol in the village of McKenna. Foot patrols by two squads will commence NLT 080700ZJUL05. Each squad will make one complete round through the center and outskirts of town. The patrols serve as a presence and show of force by American forces.

The concept of the operation is pretty simple. The platoon patrol will move to the outskirts of McKenna and establish a support by fire position south of the village with the platoon BFVs. One squad will provide a foot patrol on the west end of the village and another on the east end. One squad will provide local security for the BFV sections, with one fire team per section. The two foot patrols will provide immediate reaction force to the other in the event of a rapidly deteriorating situation with either hostile villagers or insurgents.

1st Squad will conduct a foot patrol on the western side of the village. They will move initially to CP 1, then to CP 2, CP 3 and back to CP 1 in a clockwise movement. Be prepared to, on order, act as an immediate reaction force if 2d Squad is attacked and requires assistance.

2d Squad will conduct a foot patrol on the eastern side of the village. They will move initially to CP1 five minutes behind 1st Squad, then CP 3, CP4, CP 5, and finally to CP 6. The second patrol performed by 2d Squad will follow the same route. Be prepared to, on order, act as an immediate reaction force if 1st Squad is attacked and requires assistance.

The 3d Squad will provide local security for the two BFV sections. 3d Squad ALPHA Team will provide security for Section 1, 3d Squad BRAVO Team will provide security for Section 2. Those elements will move with their respective sections in the event the BFVs are displaced.

BFV Section 1 will provide support by fire to 1st Squad from its initial support by fire position. Section 1 is composed of C-11 and C-12.

BFV Section 2 will provide support by fire to 2d Squad from its initial support by fire position. Section 2 is composed of C-13 and C-14.

Be sure that your automatic weapons and grenade launchers are manned in that order. Here's a map of the village with the building numbers and the check points. Here is a picture of the village with the building numbers superimposed on them. The view is from west to east.

The rules of engagement are also simple – you must request permission to fire on any villager or group of villagers, unless fired upon first. Do not call for indirect fire in the village proper or on the outskirts unless you have permission first. Period. Do not enter the church without permission for any reason. Bradleys and tracked vehicles are not permitted in the village proper.

One last note of caution – do not move alone in the village without a buddy. I'll remind you that the villagers ain't our friends.

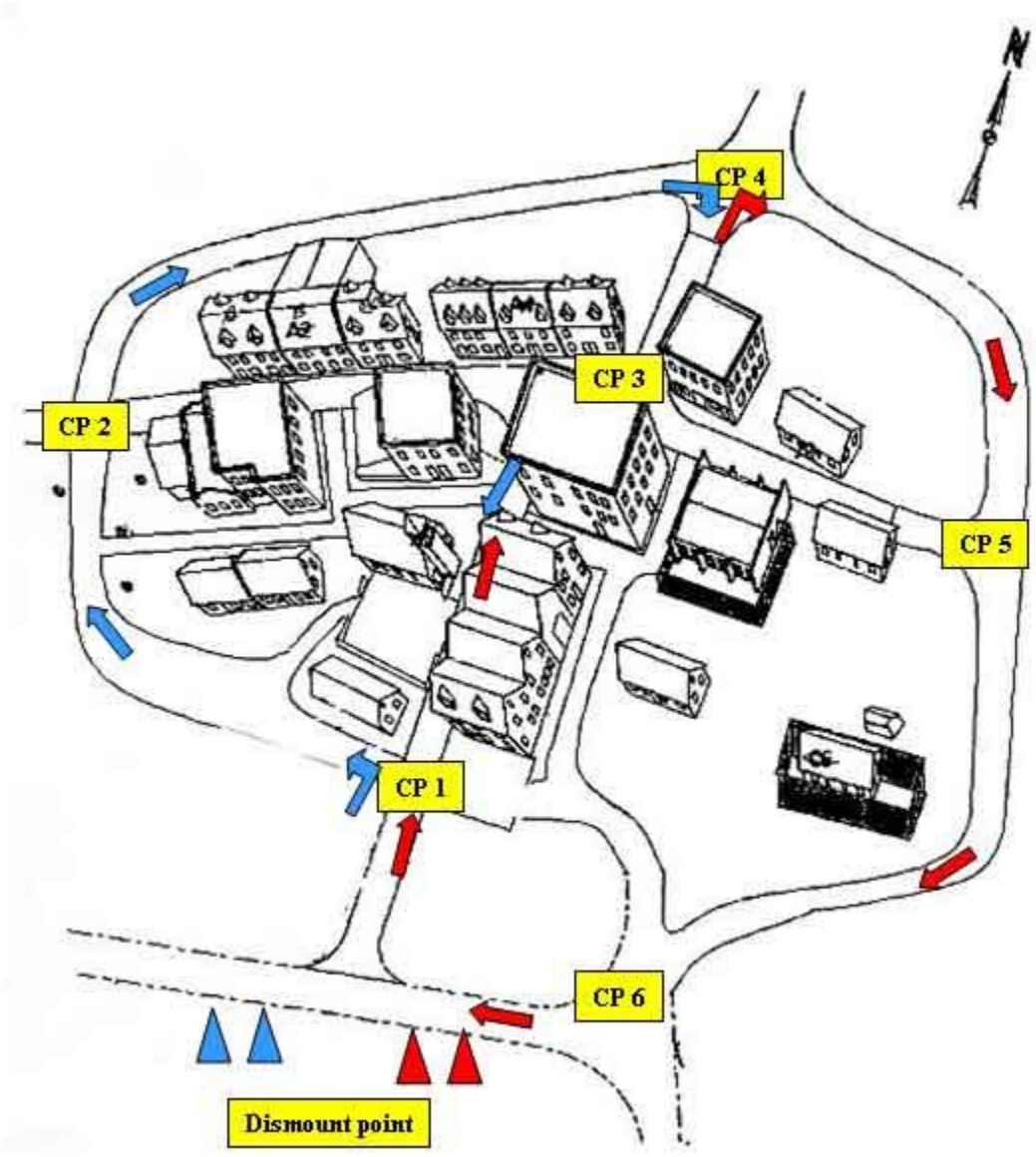
As far as ***service support*** goes – our ration cycle is CCA for now. In the event of casualties C-12 and C-13 (BFVs) will be used to evacuate the wounded to the nearest area where we can call in helicopter MEDEVAC safely. We will fuel before and after the mission, so there will not be any resupply. We are at 100% strength, so there won't be any replacements for now.

Command and signal – the platoon CP will be in C-11. The vehicle will be used by 1st Squad as a weapons platform, therefore the VC will take all commands from the 1st Squad Squad Leader. PSGs BFV will be used by 2d Squad as a weapons platform, therefore the VC will take all commands from the 2d Squad Squad Leader. The PSGs vehicle, C-13. The company CP is located at GL039826. If anything happens to me, the chain of command SOP is in effect. Frequencies as per the CEOI, and the callsigns are fixed and are:
Me – Cobra 16
Platoon sergeant – Cobra 16Alpha
1st Squad – Cobra 16 Tango
2d Squad – Cobra 16 Romeo
3d Squad – Cobra 16 Quebec
Robotics NCO – Cobra 16 X-Ray
Section 1 Leader – Cobra 11Alpha
C-11 BFV – Cobra 11

C-12 BFV – Cobra 12
Section 2 Leader – Cobra 13Alpha
C-13 BFV – Cobra 13
C-14 BFV – Cobra 14
Company Commander – Cobra 6
2d Platoon – Cobra 26
3d Platoon – Cobra 36

The challenge and password will be issued each evening at chow. The current challenge and password are Knife/Salamander. Running password is Foogas.

Are there any questions?




N
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A1
J2
B1
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C4d
E
C4c
C4b
P2
P3
C4a
P5

APPENDIX I

Platoon OPORD for Defense Mission

Here's the ***situation*** for our defense of McKenna Village – we are currently faced with the La Ban militia, which was pushed out of this village by the unit of action that we just relieved. The La Ban militia unit currently occupies the high ground to the north of the village at the base of Higley Hill. The unit, probably originally company sized, is now down to about 30-35% strength. They have high quality small arms weapons, and are moderately well trained. They appear to be low on ammunition and supplies. Intel reports that trucks have been spotted moving forward to their positions, and these are probably resupply and medevac vehicles. The unit is not able to counterattack or mount any offensive operations, but can probably put out several patrols both day and night.

The Gordonian military has become more actively involved in this fight, and Intel also reports that they may be moving a mechanized brigade into this area. They are equipped with tanks and BMPs. They could just be trying to stiffen their defense at this point, but they could also be preparing to attack.

The local population still has about 25 or so folks in the area that are sympathetic to the La Ban insurgents and do not like Americans. Some of them may belong to the La Ban militia that is north of us and are collecting intel on our forces here in McKenna. The people are openly hostile to our presence.

Our company is currently conducting surveillance of the terrain north of McKenna, and the battalion is defending along a line from west to east from Griswold Hill to McKenna. The unit on our left is 2d Platoon from our own company, and the unit on our right is Bravo Company, 2d Battalion 59th Infantry. The CO says it is the 2d Platoon. We have to have interlocking fires with them; our battalion is spread fairly thin and only has 1st Platoon Bravo Company as the battalion reserve. Our reserve at company is the 3d Squad 3d Platoon. They are located in Building P3, the dark gray building to our south.

1st Platoon's ***mission*** is to occupy Buildings J1, P1, and P4, oriented to the north-northeast. Establish an OP at least 300 meters north of the village and forward of our position no later than 1700 this evening. We will be conducting surveillance north of McKenna for several days while the UA we relieved is reorganized and consolidated, and another UA from Germany arrives and gets set up. Then, I'm told, we'll be going on the offense.

The concept of the operation is pretty simple. We need to maintain fields of fire to our north west, north, and northeast.

Our first squad will occupy Building P1, oriented to the north northeast, 2d squad will be occupy Building J1, oriented to the north-northwest over to north-northeast, and 3d Squad will be occupy Building P4, oriented northeast and east.

2d Squad will put out the observation post. It must be established no later than 1630 hours.

Be sure that your automatic weapons and grenade launchers are manned in that order. Here's a map of the village with the building numbers and the platoon positions. Here is a picture of the village with the building numbers superimposed on them. The view is from west to east.

The rules of engagement are also simple – you must request permission to fire on any villager or group of villagers, unless fired upon first. Anything beyond the OP is fair game. Once we pull the OP in, anything north of the village is fair game. Do not use grenade launchers or automatic fire in the village unless you have permission first. Period. Do not enter the church without permission for any reason.

One last note of caution – do not walk the streets of the village without a buddy. I'll remind you that the villagers ain't our friends.

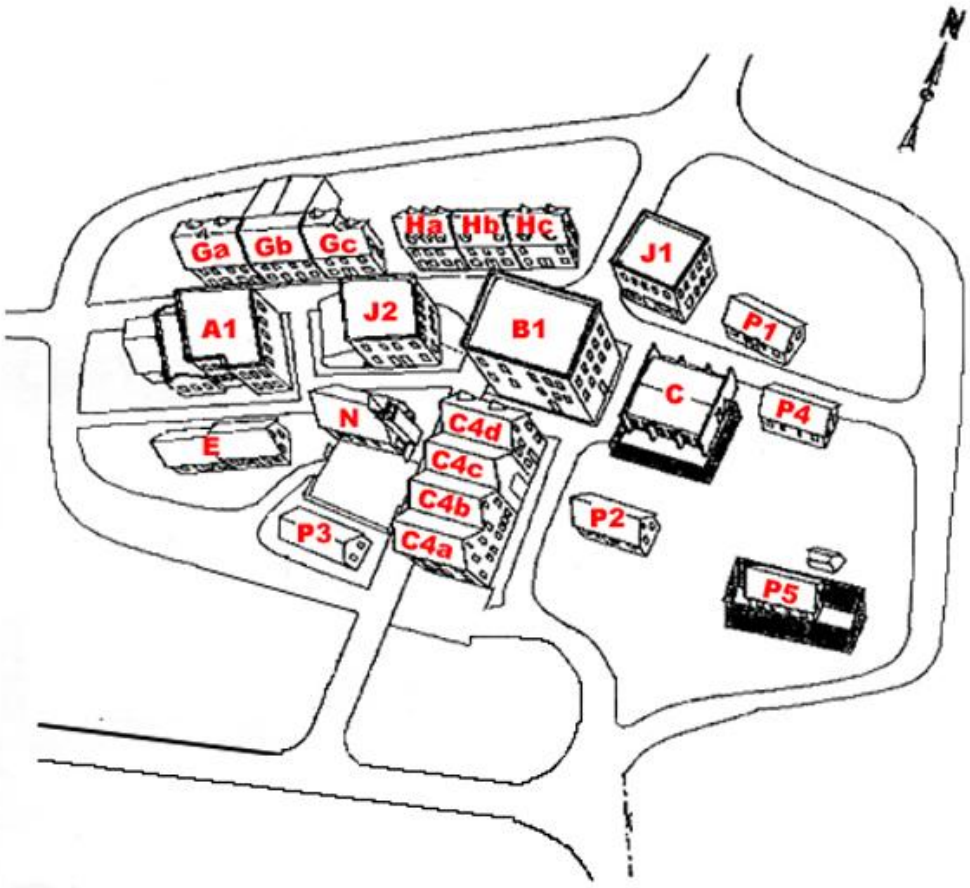
As far as ***service support*** goes – our ration cycle is CCA for now. Water will be delivered at night with the evening meal, as will the rations for the morning and noon meals. Pickup point and chow at Building J2. Mail will also be brought at that time. Ammo will be in Building C4d. The armorer is there also in the event you have a problem with a weapon or need parts or lubricants and cleaning supplies for your weapons. Due to the inexperience of our platoon medics and the shortage of medics, the company will run a consolidated aid station in Building C4c. In the event you take a POW, they will be evac'd to Building C4a. 3d Platoon is running a POW collection point there. Any captured enemy equipment will be collected at Building C4d and turned in to the armorer. We are at 100% strength, so there won't be any replacements for now.

Command and signal – the platoon CP will be in Building C4d. The company CP will be in Building C4b. If anything happens to me, the chain of command SOP is in effect. Frequencies as per the CEOI, and the callsigns are fixed and are:
Me – Cobra 16
Platoon sergeant – Cobra 16Alpha
1st Squad – Cobra 16 Tango
2d Squad – Cobra 16 Romeo
3d Squad – Cobra 16 Quebec

Company Commander – Cobra 6
2d Platoon – Cobra 26
3d Platoon – Cobra 36

The challenge and password will be issued each evening at chow. The current challenge and password are Tornado/Floss. Running password is Bagpipes.

Are there any questions?


N
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C4d
E
C4c
C4b
P2
P3
C4a
P5

APPENDIX J

SimFX Instruction Slides

SimFX Introduction

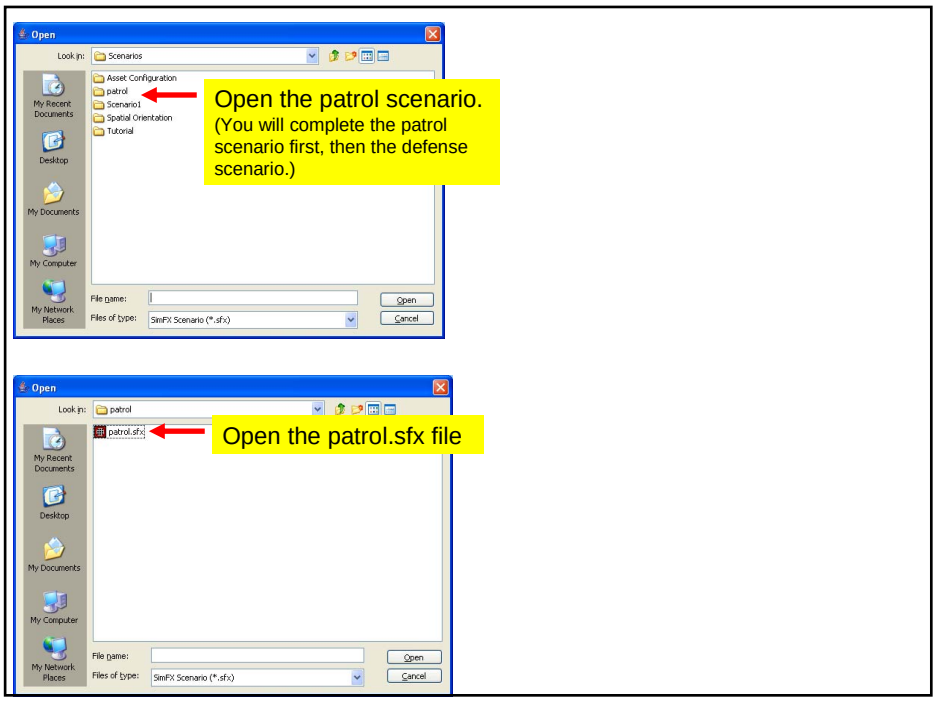
This exercise is designed to measure your rapid tactical decision-making skills and your ability to adapt to changing simulated operational conditions. You will complete two scenarios: patrol and defense. This exercise is not a test. You will not be given a score. It is for research purposes only. You will use a program called Simulated Field Exercise, or "SimFX."

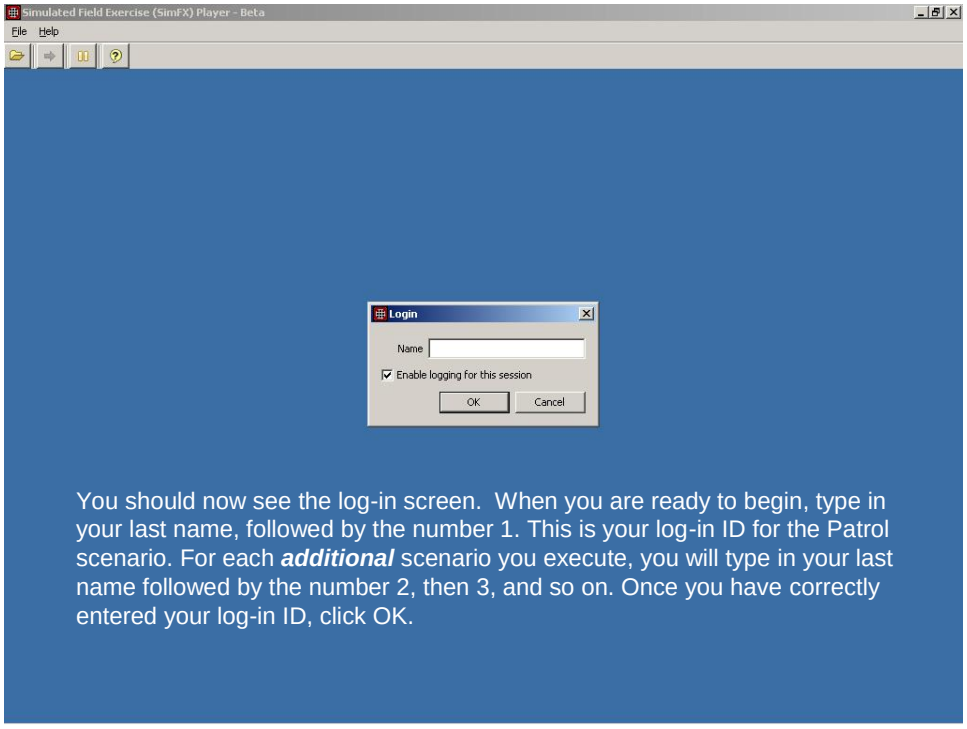
For the next several minutes we will provide you with information about how to use the SimFX program. We will show you the log-in procedures, familiarize you with the screens you will encounter, and show you examples of the essay and multiple choice questions you will answer. We will also show you how to access information that will help you make your decisions and record your answers and other responses.

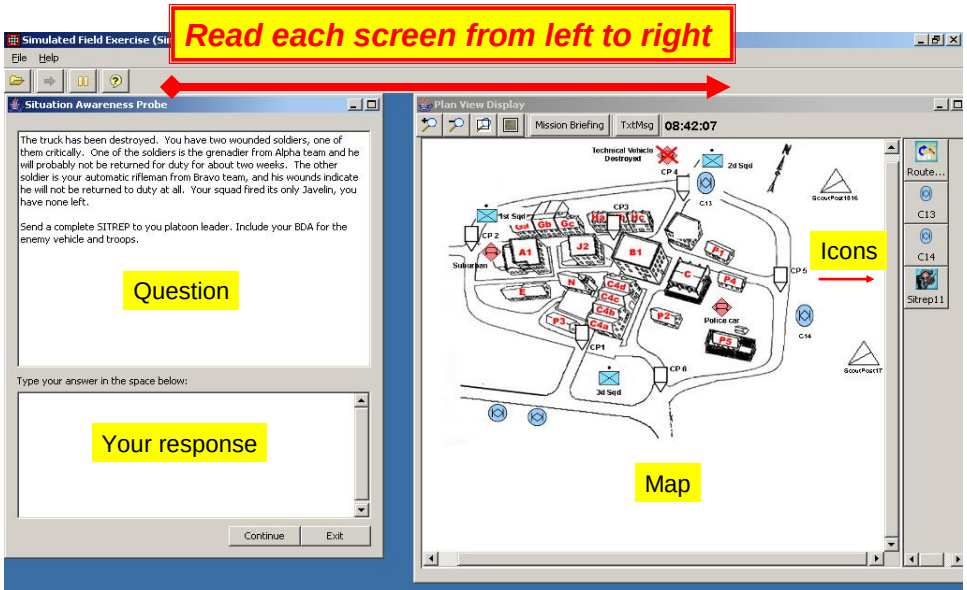
Follow these simple tips and instructions, and you will be able to complete the exercises in a timely manner.

To begin using SimFX, double-click on the SimFX Player shortcut icon on your desktop. After selecting this icon, you should see this screen.

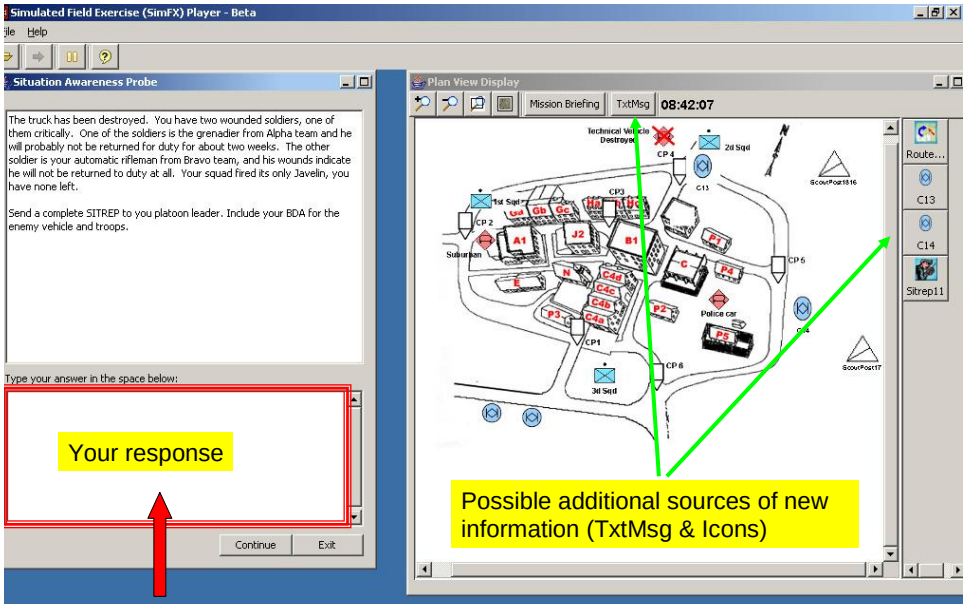
Select "Play Scenario"


Open
Look in: Scenarios
Asset Configuration
patrol
Scenario1
Spatial Orientation
Tutorial
Open the patrol scenario.
(You will complete the patrol scenario first, then the defense scenario.)
File name:
Files of type: SimFX Scenario (*.sfx)
Open
Cancel
Open
Look in: patrol
patrol.sfx
Open the patrol.sfx file
File name:
Files of type: SimFX Scenario (*.sfx)
Open
Cancel

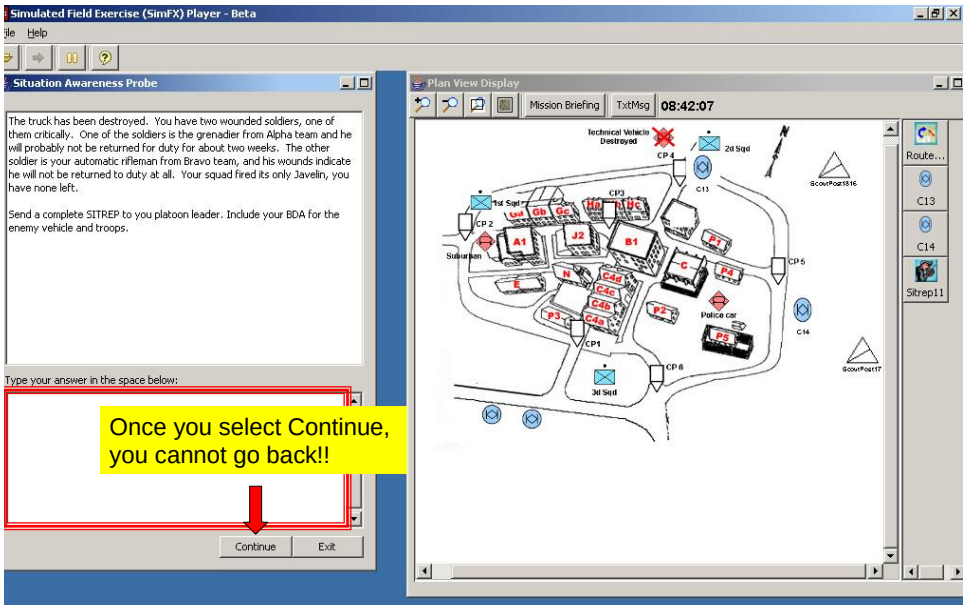

Simulated Field Exercise (SimFX) Player - Beta
File Help
Login
Name
Enable logging for this session
OK
Cancel
You should now see the log-in screen. When you are ready to begin, type in your last name, followed by the number 1. This is your log-in ID for the Patrol scenario. For each ***additional*** scenario you execute, you will type in your last name followed by the number 2, then 3, and so on. Once you have correctly entered your log-in ID, click OK.



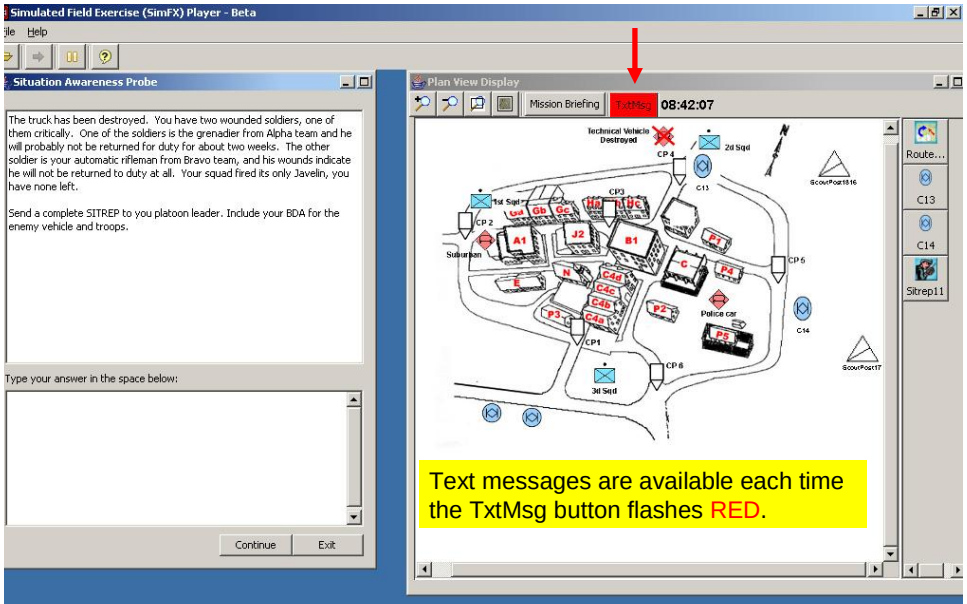
This is the question screen. Always read each screen carefully from left to right, from the Situation Awareness Probe to the icons on the far right.



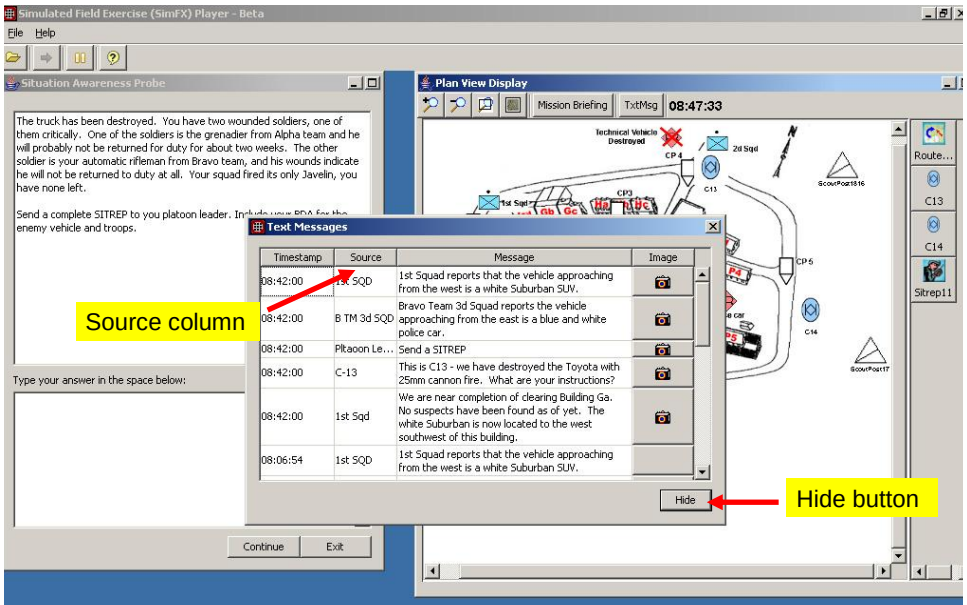
The Situation Awareness Probe box (top left) gives you information, directions, and asks questions. The red arrow points to the answer box, where you enter your response to the questions. ***Before entering an answer, see what information is available to you by reading the information on the screen to the right. Before selecting "Continue," make sure you have read all the available information and have finished typing your response. You cannot return to a previous screen once you select continue.***



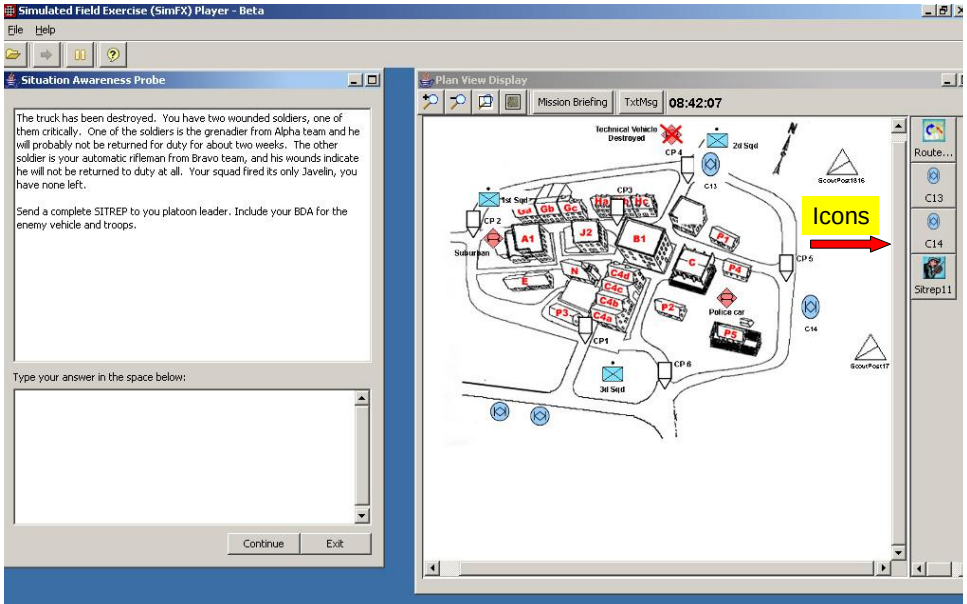
Make sure you have read all the available information and have finished typing your response. Once you select Continue you CANNOT go back to the previous screen.



Once you have read the question in the Situation Awareness Probe box, you may notice a flashing red TxtMsg button in the upper bar of the Plan View Display (top right). Click on it to see any messages you may have received. This is ***very important*** because it will give you information about the battlefield, and will help you make decisions and answer questions.



Text Messages are reports from members of the unit who are identified in the Source column of the Text Messages box. Also note the Timestamp for each message. This is important because all messages will remain in the Text Messages box. The most current messages will appear at the top of the order. When you are done reading the messages, click the Hide button.



You can also gather information by clicking on the icons to the far right. For example, if you click on the C13 icon, you will either request information from C13, or you will be able to send C13 a command, depending on where you are in the scenario.

Other Icons and Their Uses

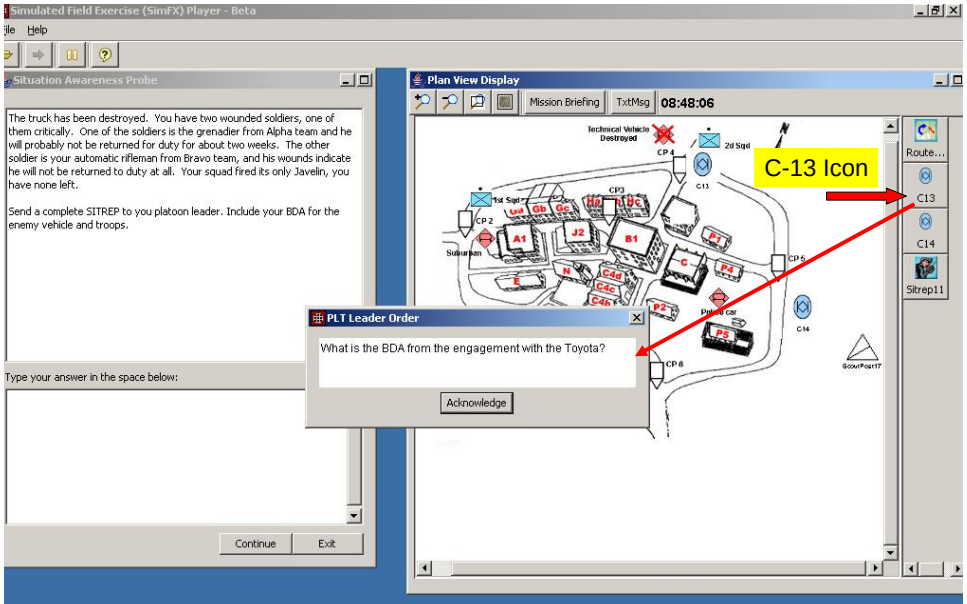
Orders – gives you the ability to record the orders you would send to a subordinate unit. Each order is recorded.

SITREP – gives you the ability to send a SITREP to your next higher headquarters **or to one or all of your subordinate units**. Each SITREP is recorded.

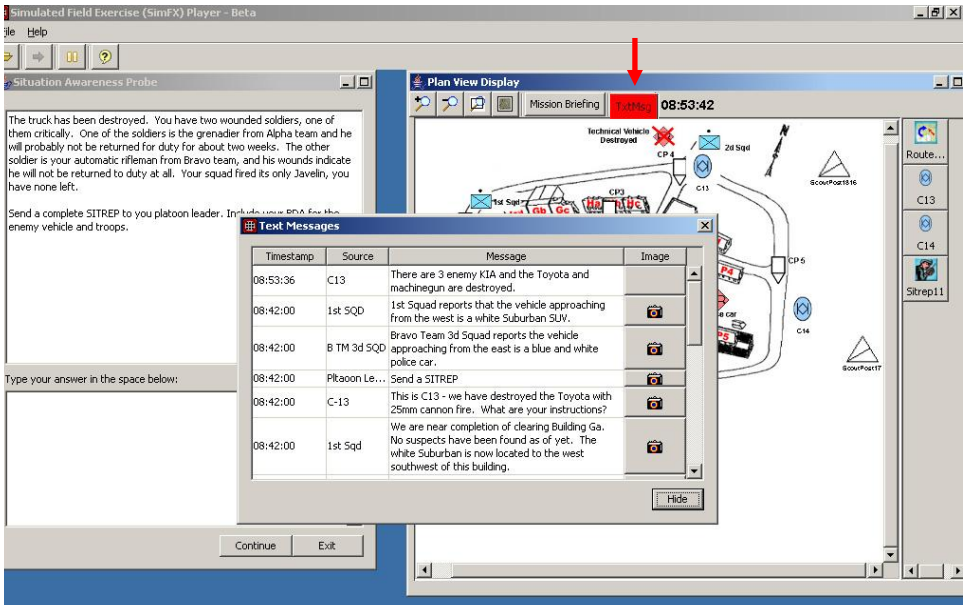
UAV – Unmanned Aerial Vehicle. This gives you the opportunity to send an order to the Robotics NCO for an aerial sensor and recon capability, and gives him the opportunity to send you a report **if the UAV is available at the time of the request**.

SUGV – Small Unmanned Ground Vehicle. This gives you the opportunity to send an order to the Robotics NCO for a ground sensor and recon capability, and gives him the opportunity to send you a report **if the SUGV is available at the time of the request.**

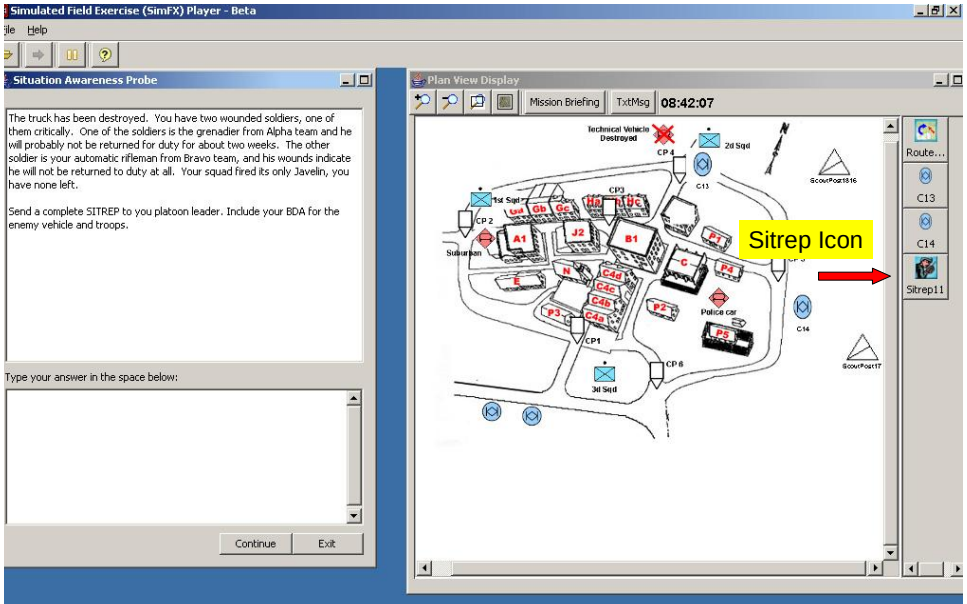
NOTE: Each time you select one of these icons, it is recorded for later evaluation. Please be sure to use them if you would in a real situation.



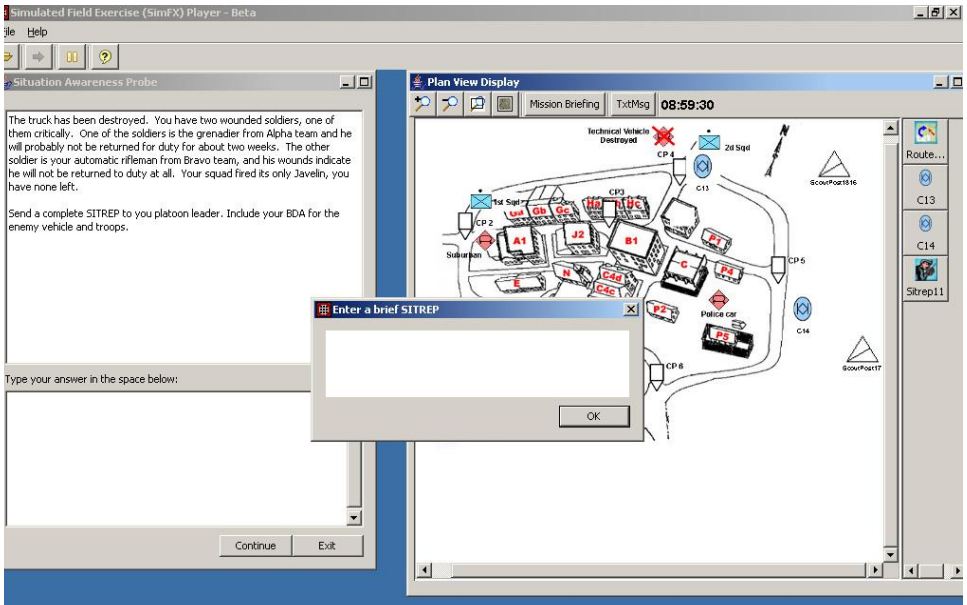
By clicking on the C13 icon at this point in the scenario, you sent a request for information about the enemy battle damage assessment from the previous engagement.



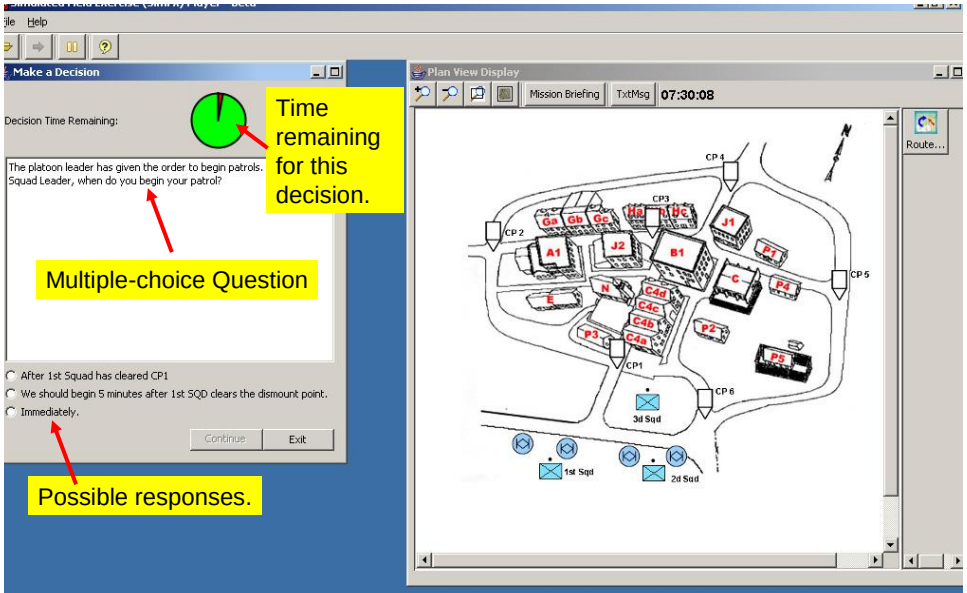
When you see the red Txt Msg button blinking again, select it. It will be a message from C13 giving you the information you asked for when you selected the C13 icon previously. The new message will appear in the Text Messages box, as shown above.



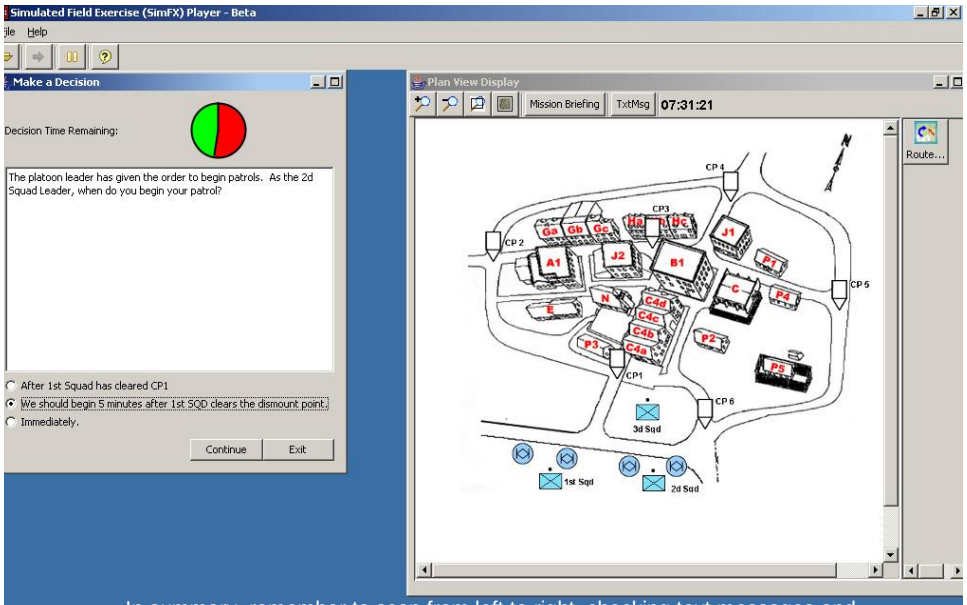
There is also a SITREP icon to the far right. After you read your question and text message, you can submit a SITREP by selecting the SITREP icon.



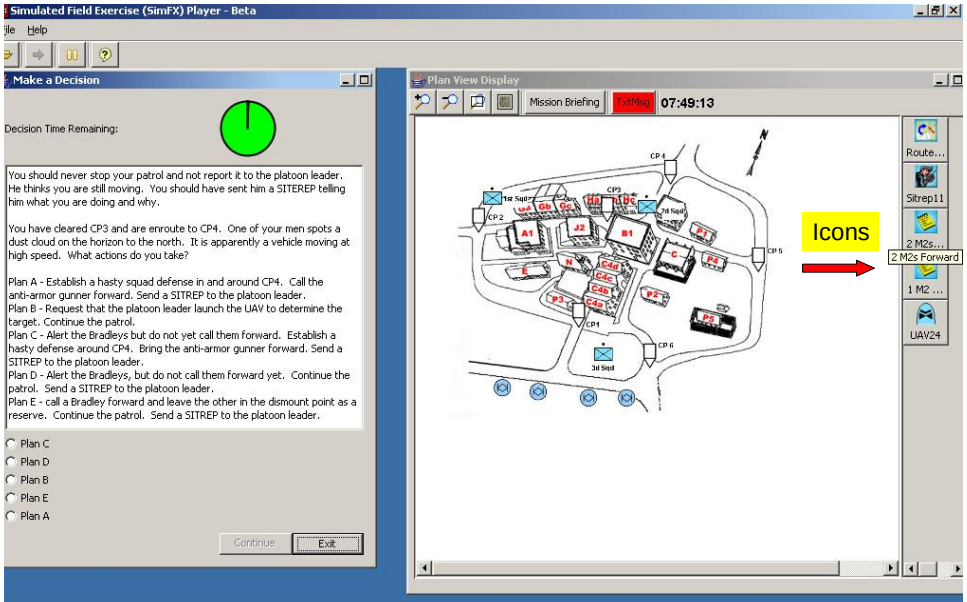
After you select the Sitrep icon, you can type your SITREP in the box provided. You always want to get credit for sending a SITREP.



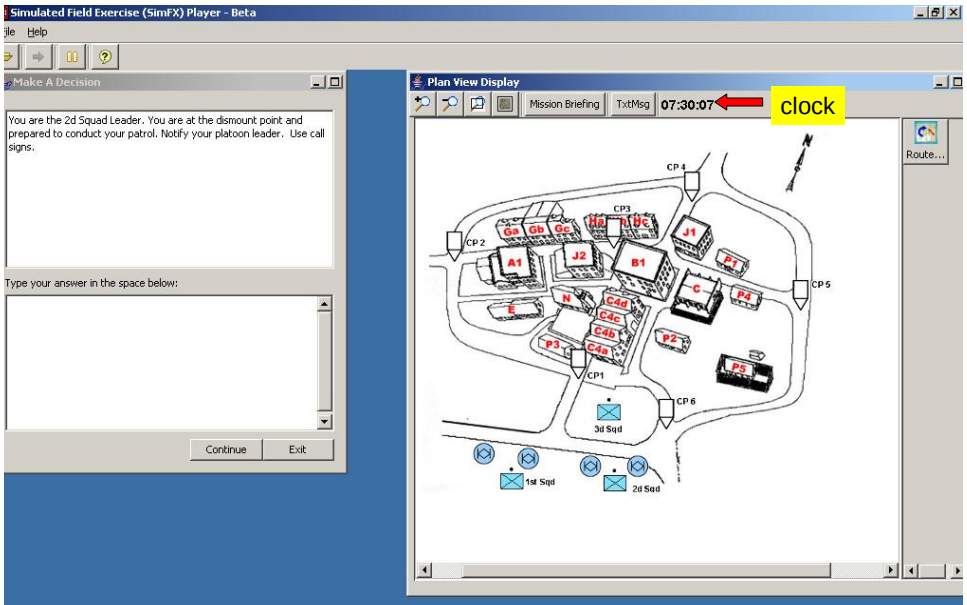
Some multiple choice questions may be timed. If so, the green clock in the upper portion of the Make a Decision window lets you know how much time you have to select a response to the question. If the clock turns red, then your time to answer the question has expired ***and the exercise will terminate.***



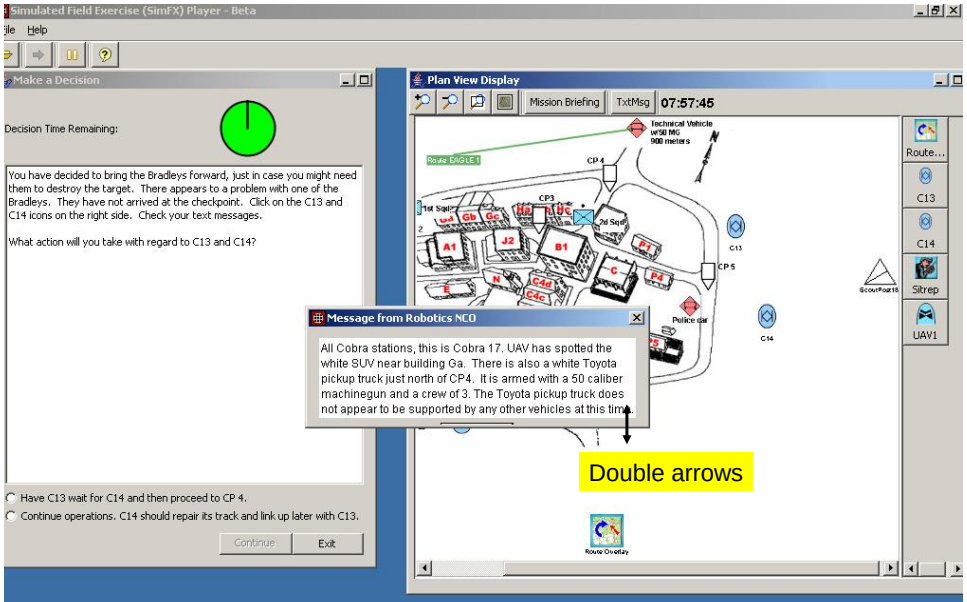
In summary, remember to scan from left to right, checking text messages and any icons that will give you information. If the TxtMsg button is flashing RED, then select it before you complete your response and before you select "Continue" in the Make a Decision box. Remember to complete your response before the green clock turns red. If you don't, the exercise will terminate.



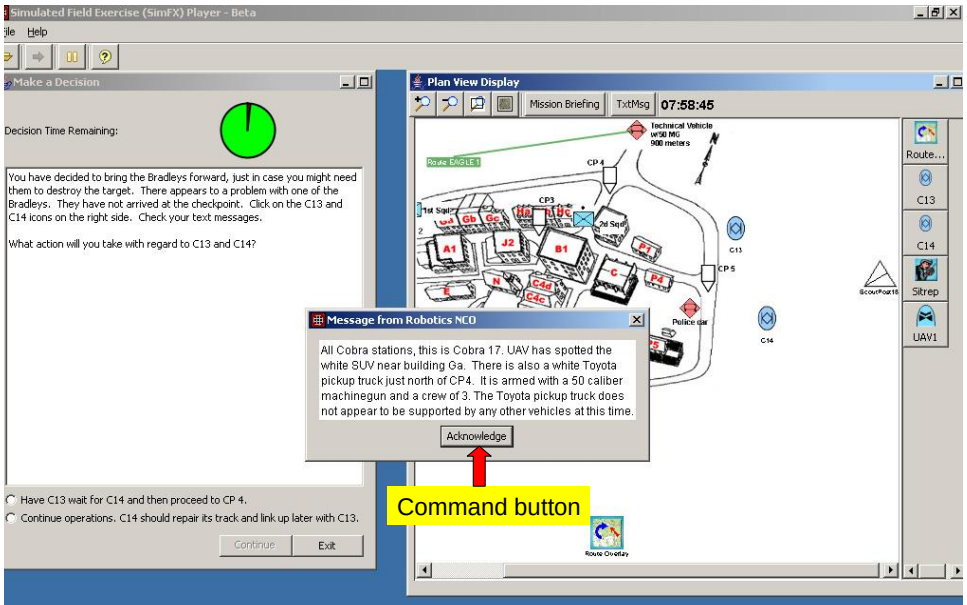
To read the icons on the right in more detail, move your cursor over the icon but don't select it. Just keep the mouse arrow over it for a few seconds. It will show you the name of the icon and its function. By selecting the icon, you are initiating an action. For example, selecting the 2 M2s icon will allow you to move 2 M2s forward.



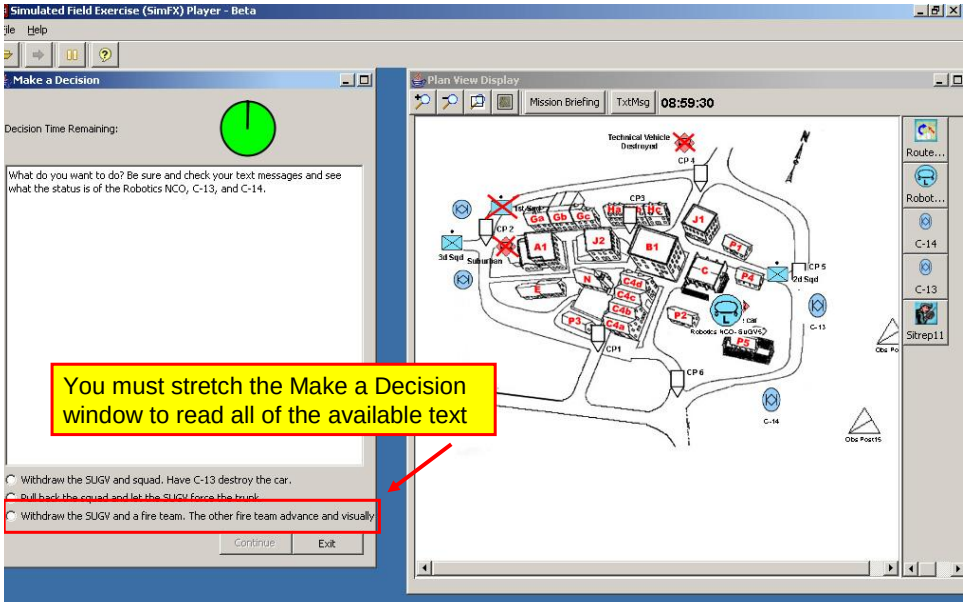
There is a digital clock next to the TxtMsg box that shows the elapsed exercise time (07:30:07). The exercise always starts at 0730 hours. If you click on the numbers, then you will see the time remaining for the exercise.



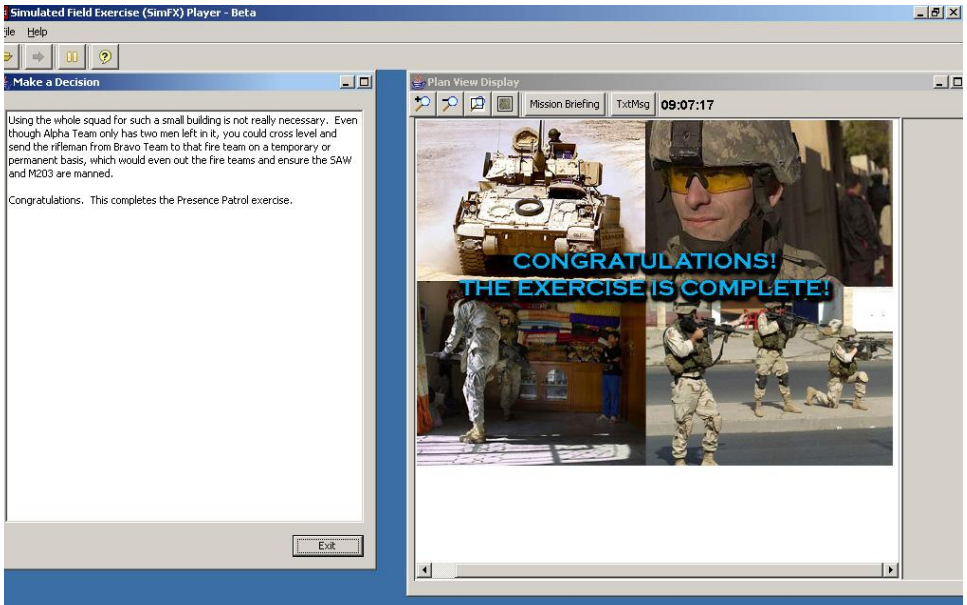
If you see a text box where the “acknowledge,” “OK,” or any other command button cannot be seen near the bottom of the box, then simply stretch the box using your cursor. Slowly move your cursor over the bottom edge of the box until you see the double arrows. Click and hold the left mouse button to stretch the bottom of the box down to expose the hidden command button(s).



Stretching the box will make a command button available to you.



If you can't read your response to an essay question because it runs off the edge of the Make a Decision box, stretch the box as you did to see a hidden command button.



When you see this picture, you know you have completed the mission.

SimFX - Review

Remember the following:

- **Scan from left to right.**
- **Be sure to read all the material on screen.**
- **Don't forget the text boxes.**
- **Don't forget the icons and other sources of information.**
- **Multiple choice questions may be timed.**
- **Be mindful of the elapsed time and time remaining.**
- **If you can't see a command button or all the text – stretch the window.**